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HEADQUARTERS  
DEPARTMENT OF THE ARMY  
Washington, DC,

**AMMUNITION SURVEILLANCE PROCEDURES**

SB 742-1, 1 June 1998, is changed as follows:

1. Remove old pages and insert as indicated below. Changed materiel is indicated by bold type.

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2. File this change in front of the publication for reference purposes.

SUPPLY BULLETIN

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
Washington, DC, 1 June 1998

No. 742-1

Inspection of Supplies and Equipment  
AMMUNITION SURVEILLANCE PROCEDURES

The Office of the Deputy Chief of Staff for Logistics, Headquarters, Department of the Army, is the proponent of this bulletin. Errors and omissions or other proposed changes will be reported on DA Form 2028 (Recommended Changes to Publications and Blank Forms) to Commander, U.S. Army Materiel Command, ATTN: AMCAM-LG, 5001 Eisenhower Avenue, Alexandria, VA 22333-0001. An information copy of each DA Form 2028 will also be furnished to:

a. Commander, Industrial Operations Command, ATTN: AMSIO-QAS, Rock Island, IL 61299-6000 (Conventional Munitions).

b. Commander, Aviation and Missile Command, ATTN: AMSAM-RD-QA-RA-QS Redstone Arsenal, AL 35898-5000 (Guided Missiles and Large Rockets).

c. Commander, Chemical and Biological Defense Command, ATTN: AMSCB-SO, Aberdeen Proving Ground, MD 21010-5423 (Toxic Chemical Munitions).

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\*This bulletin supersedes SB 742-1, dated 12 November 1990 and SB 742-2, dated 21 May 1991.

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CHAPTER 2  
SURVEILLANCE OF AMMUNITION BY INSPECTION

**2-1. General.**

a. The ammunition surveillance inspection program is structured to ensure that materiel in the stockpile meets established explosives safety and serviceability criteria and is properly classified. Inspections are accomplished by trained and certified personnel using statistical sampling techniques and procedures. The program identifies items for timely maintenance, disposal, priority of issue, and restricted use. The classification of defects and standards in this publication provides the QASAS with necessary guidance to accomplish program goals and assigned missions.

b. Required vs. non-required stocks. The ammunition stockpile is separated into two parts: required stocks (**IOC Priority 1 and 2**) and non-required stocks (**IOC Priority 3**). Required stocks satisfy both power projection and training requirements. Retail stocks are required stocks. Non-required stocks are excess to requirements. Non-required stocks will be inspected to determine status for continued safe storage and will not be inspected to determine serviceability. IOC, surveillance office, will publish, on an annual basis, a listing identifying whether an item is required or non-required. MACOMs may modify this listing as appropriate.

(1) Ammunition not listed on the current priority listing is to be considered non-required stocks (**IOC Priority 3**).

(2) Unserviceable, **non-repairable** ammunition and all ammunition in B5A or B5B accounts, whether serviceable or unserviceable, is specifically identified as non-required stocks.

(3) All stocks of propellant items, including all owners and condition codes will receive a periodic inspection.

c. The general inspection policy of this chapter is supplemented by guidance for specific items in Appendices E through AA and Ammunition Information Notices. This supplemental guidance is based on known potential problem areas and may include exceptions and additional requirements for each specific item. Therefore, in the event of apparent conflict between general requirements and requirements for specific items, the specific requirements will have precedence.

**2-2. Inspection procedures for non-army owned conventional ammunition.**

a. SMCA index of items assigned lists conventional ammunition assigned to SMCA and indicates using services. This listing is available on the world wide web at: [www.ioc.army.mil/sm/pubs.htm](http://www.ioc.army.mil/sm/pubs.htm). SMCA managed stocks will be inspected as follows:

(1) Navy/Marine Corps owned (SMCA managed) stocks will be inspected IAW TWO10-AC-ORD-010, TWO10-AC-ORD-020 and this SB. Air

Force owned (SMCA managed) stocks will be inspected IAW TO 11A-1-10, this SB and the applicable specific item technical order; if a conflict in guidance exists, the specific item TO will take precedence. Authority to use these references is DOD 5160.65-M. Receipted ammunition will have a normal Receipt Inspection (RI) performed IAW this SB. All Navy owned assets will be then scheduled for next inspection using safety-in-storage scheduling procedures. Air Force and Marine Corps receipts will be scheduled as normal for Periodic Inspections (PI) as directed by this SB. All outer packs opened for RI of Navy/Marine Corps stocks will be resealed using a traceable seal. All other procedures related to the samples will be accomplished as directed by this SB.

(2) Lot clustering is applicable to all conventional stocks and shall be used.

(3) Ammunition containing depleted uranium will be scheduled for inspection IAW owing services criteria or this SB whichever is more restrictive.

(4) Owing service requirements will be used to assign ammunition condition code regardless of inspection procedure used. During inspections of Navy and Marine Corps owned ammunition, defect classification and assignment of condition code will be IAW TWO10-AC-ORD-010; Air Force stocks defect classification and assignment of condition code will be IAW TO 11A-1-10. Service unique (SMCA managed) stocks will be inspected IAW the owing services' criteria and scheduled for inspection IAW the owing services' inspection interval.

b. Following are clarifications/exceptions to specific requirements of TWO10-AC-ORD-010 (Navy/Marine Corps stocks):

(1) A depot surveillance record (DSR) card, DA form 3022-R, will be maintained for each lot of ammunition. SMCA installations will use the DSR as the "receipt inspection record form".

(2) Where the TWO calls for a certification stamp, SMCA installations may use an authorized signature.

(3) Tags/labels and or bar codes are not required on serviceable stocks of Navy or Marine Corps ammunition in storage at SMCA installations. When ammunition is shipped to Navy or Marine Corps installations, bar codes encoded with National Item Identification Number (NIIN), owner and condition code will be affixed to the shipment. Material condition tags (DD Forms 1574 through 1577) will also be applied prior to shipment.

(4) SMCA installations should certify and seal empty containers being issued to Navy or Marine Corps activities. When empty containers cannot be sealed, SMCA installations may follow current army policy on identifying empty containers.

(5) Navy owned conventional ammunition not condition code A quality due to packaging deficiencies, but serviceable for intended

in some instances, acceptance and rejection criteria, defect classification, and permissible measured tolerances contained in the appendix will conflict with criteria contained on drawings and in specifications. Where this occurs, the criteria contained in the SASIP will take precedence (verification inspection conducted at time of renovation excluded).

(3) Requests for ammunition drawings will be made to the applicable command as follows:

(a) Army: (except chemical and GM/LR)--

Commander  
Industrial Operations Command  
ATTN: AMSIO-QAS  
Rock Island, IL 61299-5000

(b) Army guided missiles and large rockets:

Commander  
U.S. Army Aviation and Missile Command  
ATTN: AMSMI-CIC-IS-OS-ED-WS  
Redstone Arsenal, AL 35898-7462

(c) Army toxic chemical munitions:

Commander  
U.S. Army Chemical and Biological Defense Command  
ATTN: AMSCB-SO  
5183 Blackhawk Road  
Aberdeen Proving Ground, MD 21010-5423

(d) Air Force:

Commander  
Hill Air Force Base  
ATTN: 00-ALC-TIED  
Hill Air Force Base, UT 84056-5609  
DSN 777-0889

(e) Navy, Marine Corps:

Commanding Officer  
NAVSURFWARCEM Crane Division  
Code 4021, Bldg 2084  
300 Highway 361  
Crane, IN 47522  
DSN: 482-5588

(4) Ammunition Data Cards for conventional ammunition should first be requested through the Ammunition Lot Record and Malfunction System (ALRAM). If unavailable, request from the consignor or IOC surveillance office. Ammunition Data Cards for guided missiles and large rockets should be requested from the consignor or AMCOM **Munitions Team** Office.

(5) The examination of samples will normally be conducted at the ammunition surveillance workshop building; however, examinations may be performed at the storage site or elsewhere when in conformance with an approved SOP. Refer to the command explosive safety regulation, TM 9-1300-206, and/or DA PAM 385-64 as appropriate, for permissible operations inside and outside of storage structures.



(6) Lots will normally be inspected for deterioration, damage, unsafe conditions, and gross manufacturing defects. Use of gages and precision-measuring instruments during the conduct of sampling inspections will be according to paragraph 2-8.

(7) Inspection results for each lot or serial number (SN) inspected must be considered in conjunction with the results of previous inspections for that lot/lot cluster or SN. Trends in the serviceability of the lot/lot cluster must be analyzed to determine if action is required in addition to the condition coding of the lot/lot cluster inspected. Analysis could indicate that the inspection interval for the lot/lot cluster needs to be expanded or reduced (see para 2-5).

(8) The appropriate sampling plan of chapters 2, 7, 8 or 12, or applicable SASIP will be used in sampling inspections.

*c. Sample disposition.*

(1) Exterior packs from which samples were selected will be identified by a tag or label with "SURVL SAMPLE".

(2) Hermetically-sealed containers will be resealed with reinforced tape. The tape will be minimum of 1-1/2-inch in width and will be applied using three wraps with a 1-inch pull tab. The taped end of the container will be waxed dipped. Lot inspection samples will be used on a recurring basis for subsequent inspections. Exterior package of samples will be marked or tagged as surveillance samples which are not to be shipped unless the total lot quantity is being shipped.

(3) Inspection samples of small arms ammunition packed in metal-lined (terneplate) M1917 boxes will be used on a recurring basis. In all cases, the terneplate lids will be temporarily resealed using tape and wax as indicated in (2) above. Boxes will be identified as surveillance samples not to be shipped.

(4) Samples packaged in barrier material opened for inspection should have air evacuated and be resealed with sealing iron. Detailed instructions for sealing barrier material are contained in MIL-P-116 and MIL-B-117. New bags must be prepared if the original bag cannot be resealed and equivalent barrier material is available. Samples that have been properly resealed should not be used on a recurring basis.

(5) Due to extreme hygroscopic nature of styrofoam, following procedures will be implemented when unpacking or repacking M2A1 containers with styrofoam supports:

(a) M2A1 containers with styrofoam inserts will remain open for an absolute minimum amount of time.

(b) When possible, desiccant packed in M2A1 container will be replaced with fresh desiccant prior to repack. As an alternate method

of minimizing moisture absorption, place removed desiccant and styrofoam inserts in an approved desiccant container. Removed desiccant and supports will not be returned to M2A1 container until immediately prior to material repack and container closing.

(c) If neither procedure in para 2-3c(5)(b) above is possible, then repack the desiccant and all inner packing in the M2A1 can immediately after removal of material. The M2A1 can will be closed until time of repack.

(d) Packs selected for item inspection will be the minimum number prescribed by this supply bulletin. All packs which are opened for inspection will be marked or tagged "Surveillance Samples: Not to be shipped until entire lot quantity is exhausted." and used on a recurring basis for future individual lot inspections only.

(6) Samples in jungle pack and those in barrier material which cannot be properly resealed for any reason must be resealed using pressure-sensitive adhesive tape. Inspection samples will be used on a recurring basis. Outer packs will be identified as surveillance samples not to be shipped. When the entire lot is scheduled for shipment, samples in barrier material must be resealed, if possible, according to paragraph 2-3c(4) above.

(7) Serviceable samples will be returned to storage with the parent lot.

(8) Ammunition with critical defects, considered hazardous to store, will be segregated with like items and destroyed as soon as possible according to approved procedures. When applicable, ammunition with critical defects will be rendered safe to permit safe handling.

(a) Emergency disposal of lethal and incapacitating chemical munitions will comply with applicable public laws. Disposal of lethal or incapacitating chemical munitions by detonation is prohibited unless specifically authorized by higher headquarters.

(b) Munitions are sometimes assigned condition code H or placed in the RRDA or disposal account. Such munitions must be identified at time of classification for more extensive inspection or priority for demilitarization (see para 2-4e).

(9) When lot is rejected the defective samples will be tagged or otherwise marked for identification and returned to the parent lot.

(10) Only serviceable samples will be returned to serviceable parent lots. Defective samples in insufficient quantities to cause rejection of a serviceable lot will be either repaired or stored separately.

(11) Sample inspection will apply to the entire lot or lot cluster and the accept or reject criteria in Table 2-3 will be used for lot classification. For inspections involving lot clusters,

disposition of inspection results will be in accordance with para 2-6c(15).

(12) Rejected lots/lot clusters or samples must be reported according to the requirements of DA PAM 738-750. In addition, lots and lot clusters containing critical defectives will be locally suspended, assigned CC-J, and reported to the appropriate commodity command by the most expeditious means (by message or e-mail for OCONUS or by telephone during duty hours within the continental United States (CONUS)). Item nomenclature, National Stock Number (NSN), lot or serial number, defect(s) encountered, number of defectives, and number of samples examined must be included in the report. One copy of the ammunition data card(s) and the depot surveillance record card(s) will also be forwarded to the appropriate commodity command. If possible and appropriate, photographs will be included.

#### **2-4. Types of inspection.**

The principal types of inspections to be performed on ammunition materiel are defined below.

a. *Initial Receipt Inspection (IRI).* Initial receipt inspection will be performed within 30 days after receipt or prior to shipment (whichever comes first) on materiel received directly from the manufacturer, vendor, or Government activity which has been inspected and accepted by the Government at the point of origin. This inspection is expected to identify gross manufacturer errors and is not intended as manufacturer's acceptance type inspection. **IRI is not required for materiel received from an IOC plant with an assigned QASAS that have received a periodic inspection IAW IOC 702-2 and this SB.**

(1) Lot Clustering procedures will be used according to instructions of para 2-6c. Lots selected will be inspected for gross manufacturer errors, certain type manufacturing defects and nonstandard conditions. All lots received, to include the clustered lot selected for item inspection, will be individually inspected for damage in transit to include inspection for packaging and marking deficiencies, correct unitization procedures, and other nonstandard conditions which may be observed without opening packaging.

(2) For materiel which cannot be lot clustered, inspection will be on a sampling basis by individual lot and will include inspection for damage in transit, packaging and marking deficiencies, correct unitization procedures, gross manufacturer errors, certain type manufacturing defects and nonstandard conditions on both packaging and item.

#### *b. Receipt Inspection (RI).*

(1) Condition Code K will be assigned to all ammunition lots received without a valid inspection.

(2) When materiel is received from an activity with an assigned QASAS (see para 1-3b) and the DSR Card stipulates that required inspections/tests were performed on the lot within the specified time interval, inspection will be for damage in transit only.

If additional inspection is indicated, the scope will be determined by the QASAS in charge. Lot Clustering provisions of para 2-6c will be used whenever possible. If munitions are received without a DSR card, request it from the shipping activity. If DSR card is not available follow procedures listed in para 2-4b(3).

(3) Materiel received without an accompanying DSR card will be inspected as follows:

(a) Containers will be inspected 100 percent for presence of seals. Contents of unsealed containers will be inspected 100 percent. Gaging will be performed as required by paragraph 2-8.

(b) Sealed containers and their contents will be inspected on a sampling basis by lot for damage in transit, deterioration, and nonstandard conditions.

(c) The extent of inspection will be altered by the QASAS in charge when the documentation received or the condition or configuration of the materiel indicates that an increase or decrease in the scope of inspection is required or justified.

(4) Used packaging material (i.e., boxes, fiber containers, filler material, eye-bolt lifting plugs, closing plugs, etc.) will be inspected as follows:

(a) Receipts from storage installations, posts, camps, and stations with qualified ammunition surveillance personnel (assigned QASAS, military ammunition inspectors, MOS 55B, and properly trained and designated civilian technicians) and with documentation that certifies the materiel has been subjected to 100 percent inspection for serviceability and explosive contamination should be accepted in the condition assigned by the inspecting installation. Material certified free of explosive contamination by the shipping installation is suitable for storage in inert areas.

(b) Assignment of condition code K and 100 percent receipt inspection is not required for on-post accumulation of materiel generated from maintenance, demilitarization, load, assembly, and pack (LAP) operations which is stored in segregated areas set aside for the exclusive storage of class V materiel. The materiel shall be given a 100-percent inspection prior to shipment, use, disposal, or storage in an inert area.

(c) Materiel placed in inert storage areas or offered to Defense Reutilization Management Office (DRMO) must have had a 100 percent inspection, verified on a sampling basis by a QASAS, and be certified as explosive free according to DOD 4160.21M and DOD 4160.21M1. Certifications and inspection records must be maintained for materiel held in inert storage areas. Storage area and materiel must be controlled to ensure inspected and certified stocks are separated from materiel not properly inspected and certified as being free of explosive contamination.

(d) Serviceability will be determined using appropriate criteria given in paragraph 2-7. Degree of explosive contamination, if any, will be determined in conjunction with foregoing inspections. Wooden packing materials treated with pentachlorophenol (referred to as PCP or PENTA) must be properly identified. Containers which have contained depleted uranium cartridges will be tested according to AR 385-11 to ensure that they are free of radioactive contamination.

(d) Serviceability will be determined using appropriate criteria given in paragraph 2-7. Degree of explosive contamination, if any, will be determined in conjunction with foregoing inspections. Wooden packing materials treated with pentachlorophenol (referred to as PCP or PENTA) must be properly identified. Containers which have contained depleted uranium cartridges will be tested according to AR 385-11 to ensure that they are free of radioactive contamination.

(e) The extent of inspection will be altered by the QASAS in charge as required.

(f) Materiel received with proper certification or documentation described in paragraph 2-4b(4)(a) above can be shipped to other depots or plants without additional inspection prior to shipment. Copies of the certification and/or documentation will be provided to the consignee.

c. *Acceptance inspection (AI)*. Acceptance inspection is performed on materiel received from contractor or plant requiring inspection and acceptance at destination, materiel inspected at origin and requiring acceptance at destination, and components from demilitarization to be reused or restored to stockpile. Instructions for AI will be furnished by the applicable commodity command, when required. Depots receiving materiel from procurement for stock will process DD Form 250 (Materiel Inspection and Receiving Report) according to AR 715-29.

d. *Periodic inspection (PI) (cyclic)*. All required stocks will be inspected periodically for deterioration and nonstandard conditions for classification of true level of serviceability. Lot clustering procedures per para 2-6c will be used.

(1) Where a previous inspection has established a static condition; e.g., a rocket continuity test failure that has established a requirement for 100-percent replacement or inspection of igniters), such tests should not be performed during subsequent inspections. Disassembly for inspection of manufacturing type defects (measuring, weighing, etc.) will not be performed unless required by a specific procedure or directed by the appropriate commodity command (see para 1-3e(3)).

(2) For SMCA managed required stocks in condition codes A, B, C, D and N, PIs will be performed at the time intervals specified in table 2-1. PIs will be performed on unserviceable SMCA managed required stocks at twice the listed inspection interval. Interval for U.S. Army Aviation and Missile Command (AMCOM) managed items will be as directed by the item SB. PIs will not be performed on stocks in the demil account.

(3) If stocks are stored under adverse conditions, the materiel must be examined more frequently as determined necessary by the QASAS in charge.

(4) **All stocks of propellant items, including all owners and condition codes, stored at IOC locations will receive a PI.**

e. *Safety in storage inspection (SIS).*

(1) Non-required stocks and all stocks in the Resource Recovery and Disposition Accounts (RRDA) will be inspected to ensure they are safe for continued storage and handling. Handling includes those preparatory actions necessary to demilitarize or transport the item. The QASAS will determine whether the conditions noted are immediately hazardous or could result in a hazardous situation for handling, storage, or transportation. SIS inspections are not required for inert ammunition. When performing SIS inspections, ammunition materiel will only be inspected for defects that could affect further safe storage and handling, such as exposed explosives, corrosion which could lead to exposed explosives, or missing safety devices.

(2) Lots determined to pose an immediate threat to life, health, or government property will be reported for emergency destruct.

(3) Lots or lot clusters determined to be potentially hazardous will be inspected as frequently as necessary to assure continued safe storage of the lot. Necessary actions will be taken to identify and ensure demilitarization of this materiel before it becomes hazardous. Intervals in Table 2-1 will be utilized. QASAS in Charge may reduce interval as required. Classify this materiel to Condition Code (CC) H and assign defect code C018EZ.

(4) Lots or lot clusters determined to be nonhazardous in terms of normal storage and handling will be inspected at twice the designated PI interval.

(a) Serviceable lots in SIS status will be classified CC-J and defect code C018TM will be assigned. NOTE: Navy owned stocks will **receive SIS inspections and** be maintained in their appropriate condition code, defect code C018DU will be assigned to these stocks. Navy stocks will receive an **"issue" inspection IAW TWO10-AC-ORD-010, Chapter 6, prior to shipment.**

(b) Unserviceable lots will be classified CC-H or CC-P and defect code C018FZ **assigned. CC-P will be utilized only upon direction of higher headquarters.**

(5) Sampling plans for SIS inspections will be determined by the QASAS in charge. The minimum sample size for potentially hazardous items is that indicated in table 2-3. The minimum sample size for nonhazardous items is one-half that indicated in table 2-3.

(a) Accept-reject criteria will not be used. The QASAS will determine whether or not the lot can be expected to remain nonhazardous during the SIS inspection interval. For lot clusters; defects found within the sampled lot which could affect safe storage or handling will cause a change in the status of the sampled lot IAW paragraphs 2-4e(2),(3), and (4) above and selection of additional samples IAW paragraph 2-6c(15).

(b) Testing or gaging is not required.

(6) SIS inspections will normally be performed in the surveillance workshop and must include inspection of outer pack, inner pack, and item. Palletized projectiles and small arms ammunition

(except cartridges with chemical or explosive projectiles) may be inspected in the storage location. Examination of outer packs in storage is normally sufficient for small arms ammunition up to .50 caliber.

*f. Storage monitoring inspection (SMI).*

(1) Storage monitoring inspection is performed as required by applicable technical instructions for specific items or as determined necessary by the QASAS in charge. It is performed on items while in the storage site and includes but is not necessarily limited to--

(a) Inspection of lethal chemical agent munitions, containers of bulk lethal chemical agent, or containerized lethal chemical agent munitions to detect leakers and other visual defects.

(b) Reading and recording pressure and relative humidity of items packaged in pressurized or desiccated containers.

(2) Frequency of SMI will be as required by the technical instructions for the specific item. SMI may also be conducted when determined necessary by the QASAS in charge.

*g. Special inspections (SPI).* These inspections are performed at the direction of higher headquarters or to satisfy special or local requirements when approved by the QASAS in charge. Reason(s) for conducting SPI must be entered in the inspection remarks.

*h. Preissue inspections (PII).* This is an inspection other than a PI that must be performed prior to issue. Examples are ammunition requiring a special check for specific defects as determined by QASAS in charge or as directed by higher headquarters; or lots in SIS status which require a serviceability inspection prior to issue. A lot or lot cluster overdue for PI will be given a PI prior to shipment, not a PII. The appropriate sampling plan in paragraphs 2-6 or chapters 8 and 12 will be used. Reasons for conducting PII must be entered in inspection reports. Navy owned munitions in SIS status will receive a PII prior to shipment.

*i. Verification inspection (VI).* This inspection is performed on materiel processed during preservation and packaging (P&P) and maintenance (renovation, modification, overhaul, etc.) type operations. Verification inspection will be performed according to paragraphs 4-3 and 4-4.

*j. Basic load inspection (BLI).* Basic load inspection is performed on stocks of munitions (to include training, security, and contingency stocks) maintained by a military unit or civilian security forces. This includes security forces at installations where AR 50-6 applies. Chapter 8 of this SB contains additional instructions.

*k. Surveillance function test inspection (SFTI).* Function test of ammunition will be conducted according to paragraphs 3-1 through 3-3 and SB 3-series or SB 742-series publications for the specific item to

be tested. The visual inspection conducted in conjunction with the preparation of function test samples may satisfy the PI required for the lot(s) tested, however, additional samples may be required.

## **2-5. Periodic inspection intervals.**

a. The normal interval of inspection for required stocks is based on the expected rate of deterioration for specific item types. These deterioration rates have been developed into inspection interval categories which are assigned to items as appropriate. For items in outside storage see para 10-3.

b. The normal interval of inspection for each category is given in Table 2-2. This interval is to apply unless specified otherwise in the inspection procedures for a specific item or is adjusted according to paragraphs c through e below. Serviceable lot(s) will be assigned defect code C018DH (overdue for inspection) when the elapsed time since the date of the last inspection exceeds the assigned interval by 6 months. The lot/lot cluster will remain in the previously assigned condition code until either the required inspection is performed or the lot/lot cluster reaches twice the assigned interval. Condition code J will be assigned to the lot(s) that are not inspected by the time they reach twice the assigned inspection interval and defect code C018TM (overdue for inspection by twice the interval) applied.

c. When the inspection results of a specific lot or lot cluster reveal progressive degradation of such degree that the lot may become unserviceable before expiration of the assigned category interval, the QASAS in Charge will schedule the next inspection at a shorter interval based on conditions detected, storage conditions, and materiel involved.

d. The normal interval of inspection may be expanded whenever local storage conditions, climatic conditions, and previous inspections justify. A prime concern in the area of climatic conditions must be the degree of relative humidity. The QASAS in charge is responsible for determining those items, specific lots and lot clusters that will be placed in an expanded inspection interval status. As a minimum, adjusting an interval of inspection for items, specific lots or lot clusters will be based on the following criteria:

(1) Each lot or lot cluster being considered for expanded interval status must have had either an IRI, RI, or VI.

(2) Data from previous inspections must indicate that no appreciable degradation has occurred.

(3) Lots and lot clusters will be stratified by Department of Defense Identification Code (DODIC), and any other criteria determined applicable (such as manufacturer, age, condition, storage history) and each stratum considered as a whole for possible interval expansion. This procedure is not intended to be used on a one-time basis to extend intervals on lots or lot clusters overdue for inspection. It is



intended to be used on a one-time basis to extend intervals on lots or lot clusters overdue for inspection. It is intended to identify types of ammunition that can be considered for change of category based on actual inspection history.

(4) An expanded inspection interval may consist of an increase of up to one whole interval. The QASAS in charge is authorized to implement an expanded inspection interval. A brief history of the lots involved and rationale for the expanded interval implemented must be furnished to IOC, Surveillance Office for use in future inspection interval research.

e. For operational efficiency, all similar items should be programmed during the same month of a given year's PI schedule. To establish and maintain a schedule by like items, it is permissible to vary the date of next inspection (DNIN) by decreasing the interval as much as 5 months or increasing the interval as much as 6 months (i.e., a lot due for PI in Oct 98 may be scheduled as early as May 98 or as late as Apr 99). Adjusting the schedule in this manner will have no effect on the provisions of paragraph 2-5b above.

f. Priorities for periodic inspection.

- (1) Materiel with high turn over rates, needed to fill issue requirements.
- (2) Lots in CC-J for past due inspection by twice the interval.
- (3) Lots six months or more past due inspection (but less than twice overdue).
- (4) All other required materiel at normal inspection interval.

g. Lots and lot clusters overdue for PI will not be issued. Shipments to Posts, Camps, Stations locations will have a minimum of six months remaining on their inspection cycle. Ammunition lots issued to OCONUS locations and to users/installations without a QASAS must have at least one year remaining on the inspection cycle.

## **2-6. Ammunition inspection categories and sampling plans.**

a. Ammunition items (except toxic chemical and AMCOM-managed items) are separated into categories for assignment of PI intervals as listed in table 2-1. Category determination is based primarily on susceptibility to and rate of deterioration. Items not listed under one of the existing categories will be reported to IOC Surveillance Office and be considered as category Z until a category is assigned. Change to a category will be disseminated by message pending formal change to this bulletin. Changes in categories are effective immediately and intervals for inspections must be adjusted at time of change. Categories for specific items or family of items covered by appendix E through AA supersede guidance given for general items in table 2-1.

b. Table 2-3 will be used to determine the inspection sample sizes for IRI, RI, PI, and PII.

c. *Lot Clustering*

(1) Ammunition lot clustering procedures are used to administratively combine ammunition lots into homogeneous groupings for the purpose of conducting classification (serviceability) inspections. This procedure is applicable to inspection of Army, Air Force and Marine Corps owned conventional ammunition stocks. This procedure also applicable to Navy owned conventional stocks for safety in storage inspection purposes. Those lots which do not meet the criteria for clustering will be evaluated using applicable guidance for individual lot inspections. Lot clusters may not contain more than 50 individual lots.

(2) Clustering will be performed within individual installations. The QASAS in charge is responsible for implementing the lot clustering program and is the final authority on acceptability of lots for clustering.

(3) When a cluster is being formed the date of next inspection will be based on the lot having the most recent date of last inspection (does not include inspection for damage in transit). If all lots within the new cluster are past due inspection, one lot must be inspected. This date then becomes the date of last inspection for the cluster.

(4) Lot clusters will use normal periodic inspection intervals of table 2-1.

(5) Lots may be added (up to 50 lots) or deleted from a cluster at any time. Suspension or restrictions issued by higher commands or receipt/issue of a lot at the installation may be cause for the addition/deletion, but will not alter the date of next inspection for the lot cluster.

(6) Inspection samples will be drawn from a single lot within the cluster (except as described in paragraph 2-6c(13)) and must be representative. A different lot will be selected at subsequent intervals until all lots in a cluster have been sampled.

(7) All lots within a cluster are considered equally suitable for issue. Further inspection will not be required for shipping individual lots of a cluster which is within inspection cycle, unless directed by higher headquarters for specific PII requirement. Receiving installation will apply the results and date of last inspection to the actual lot received from a cluster.

(8) Lots deleted from a cluster for any reason will retain the date of next inspection of the cluster. The DSR card will show the inspection results of the sampled lot from the cluster.

(9) Lot clustering of new materiel is authorized when directly received from the manufacturer. "Skip lotting" is no longer an acceptable method of inspection for initial receipts.

(a) Normally, the first lot received from a manufacturer which meets clustering criteria will be given an IRI per para 2-4a. Any cluster must have a minimum of one lot inspected at the time of receipt or prior to issue.

(b) Only materiel received directly from the same manufacturer can be added to an existing lot cluster of new materiel.

(c) Each individual lot of new materiel received will be inspected for damage in transit.

(10) Lot clustering of materiel requiring SIS inspection:

(a) Multiple condition codes may be clustered for SIS inspections as long as clustering does not affect the safe storage and handling of the lot.

(b) Lots receiving SIS will have a PI performed prior to issue. Navy owned lots will have a PII.

(11) In all cases, DSR cards for each lot in the cluster will be annotated with the inspection results of the sampled lot. Included in the inspection remark will be the cluster lot index number and the lot number sampled.

(12) Each individual lot within a cluster must be evaluated in its storage locations for visual degradation. Any indication that a particular lot is showing a different rate of deterioration will be cause for deletion of that lot from the cluster. This evaluation may be performed in conjunction with magazine inspections or at the time samples are selected in the storage structure.

(13) The clustering criteria which follows must be met by lots considered for inclusion into a lot cluster.

(a) Same model/series of ammunition. This will typically separate clusters by the Department of Defense Ammunition Code (DODAC) (e.g., 1305-A071).

(b) Same manufacturer. This will be indicated by the manufacturer prefix for ammunition lot numbers (reference MIL-STD-1461). Depot lots (e.g., RR, SRD, RHN, etc.) that are formed from grouping ammunition lots will not be considered for lot clustering.

(c) Same lot interfix. All non-standard lots (lots with lot identifier codes, i.e. A, D, E, G, H, P, PG, R, S, SP SR, and PILOT) described in MIL-STD-1168 will not be clustered. The number of lots within a particular cluster is dependent on the number of lots within an interfix at the individual installation. There is no need to limit the number of lots beyond the scope of criteria noted here. Only

propelling charges for semi-fixed ammunition assigned a standard ammunition lot number are eligible for clustering. All other propelling charges and bulk propellants whose ammunition lot number is composed of the 5-digit number representing the propellant index or serial number will not be clustered.

(d) Similar method of pack. The intent here is to separate lots within the same DODAC which have significantly different types of packaging. Examples are mortar ammunition with and without jungle wrap.

(e) Same condition code. All lots must have the same condition code to be included in the cluster. Not applicable to SIS lot clusters.

(f) Similar lot history. The DSR card must be reviewed to ascertain the similarity of lot histories for the lots being considered for clustering. Lots that have been uploaded will not be clustered. A lot cluster of new materiel must only contain materiel received from a manufacturer.

(14) Record keeping for lot clusters will be in accordance with guidance of para 11-2i.

(15) Disposition of inspection results. Sample inspection will apply to the entire cluster and accept/reject criteria of table 2-3 will be used for cluster classification. If the sampled lot fails to meet serviceability criteria additional samples will be inspected.

(a) Lot clusters with 2 to 5 lots, inclusive: dissolve cluster and inspect each individual lot in accordance with this chapter.

(b) Lot cluster with 6 to 10 lots, inclusive: inspect 2 (two) additional lots. If neither of the additional lots fail to meet serviceability criteria, remove first inspected (failed) lot from cluster and retain cluster in appropriate serviceable condition code. If either of the additional lots fails to meet serviceability criteria, reject the entire lot cluster and assign condition code accordingly.

(c) Lot clusters with 11 to 20 lots, inclusive: inspect 3 (three) additional lots. If none of the additional lots fail to meet serviceability criteria, remove first inspected (failed) lot from cluster and retain cluster in appropriate serviceable condition code. If any of the additional lots fail to meet serviceability criteria, reject the entire lot cluster and assign condition code accordingly.

(d) Lot cluster with 21 to 50 lots, inclusive: inspect 5 (five) additional lots. If none of the additional lots fail to meet serviceability criteria, remove first inspected (failed) lot from cluster and retain cluster in appropriate serviceable condition code. If any of the additional lots fail to meet serviceability criteria, reject the entire lot cluster and assign condition code accordingly.

(e) Individual failed lots which are removed from the cluster due to conditions stated in paragraphs 2-6c(13)(a) through (d) above will be treated as individual lots and be assigned the appropriate condition code based upon original inspection.

(f) Sample sizes and accept/reject criteria for all lots inspected within a cluster subsequent to the failure of the first lot to meet serviceability criteria will be in accordance with cluster lot requirements of table 2-3.

## 2-7. Surveillance defect standards.

a. Ammunition defects are classified into the following four categories:

(1) Critical. A defect that is likely to result in hazardous or unsafe conditions for individuals using, maintaining, or depending on the item, or a defect that is likely to cause the destruction of/or serious damage to the weapon or launcher under normal training or combat conditions.

(2) Major. A defect other than critical that is likely to result in failure in tactical use or which precludes or reduces materially the usability of the item for its intended use.

(3) Minor. A defect other than critical or major that is not likely to result in failure during use or reduce the intended use of the item, but which should be corrected prior to issue.

(4) Incidental. Defects not of the critical, major, or minor types will be classified as incidental and corrected when maintenance is performed on the item. Incidental defects will not normally be reported to the commodity command unless specifically requested but will be recorded on the depot surveillance record card.

b. Defectives are items having one or more defects; e.g., an ammunition item or unit having one or more major defects is considered a major defective. An ammunition item or unit having one or more critical defects and one or more major defects and one or more minor defects will be classified as a critical defective, a major defective, and as a minor defective.

c. The following criteria are furnished as a guide to assist the QASAS in classifying metal, plastic, and rubber component deterioration or corrosion; mixed ammunition; damage; packaging; and marking defects into one of the four defect categories:

(1) Metal, plastic, and rubber component deterioration.

(a) Critical deterioration is deterioration which creates a hazardous condition for persons using or maintaining the item.

b. All condition codes must be assigned by a QASAS. QASAS must review and approve any reclassification action.

Table 2-1. Periodic Inspection Intervals.

Item	Category
Activators.....	X
Additive Jacket.....	Y
Ammunition fixed and semi-fixed, 37mm through 165mm for guns and howitzers:	
a. Cartridge, 105mm, semi-fixed for howitzer assembled with <b>M67</b> propelling charges less than 15 years old ( <b>except M84 series HC, Smoke, and M629 Tactical CS</b> ).....	Y
b. Cartridge, 105mm, semi-fixed for howitzer assembled with <b>M67</b> propelling charges 15 years or older, <b>M84 series HC Smoke, and M629 Tactical CS</b> .....	Z
c. <b>AP (except 105mm and 120mm tank ammo w/DU penetrator), APERS, CAN, HE (all types), WP and TP</b> .....	W
d. Blank, illuminating and 120mm M830,M831,and M865.....	Y
e. Chemical, colored smoke, HC, leaflet, pyrotechnic, riot control.....	Z
Ammunition for mortars jungle pack):	
a. HE, WP, and practice with explosive components....	V
b. Practice without explosive components (inert).....	U
c. FS smoke, leaflet riot control.....	X
d. Illuminating.....	W
Ammunition for mortars regular pack):	
a. HE, WP, and practice with explosive components...	X
b. Practice without explosive components (inert).....	W
c. Chemical, FS smoke, leaflet, riot control.....	Z

d. Illuminating.....	Y
Ammunition for mortars (plastic Mono Pack).....	Z
Ammunition for recoilless rifles....	X
Ammunition, inert, all types..	W
Ammunition, small arms, through 30mm (except through cal .50 packed in steel cans with gaskets).....	W
Ammunition, small arms, through cal .50 packed in steel cans with gaskets.	U
Bag loading assemblies for mortars	Y
Bangalore torpedoes .....	X
Black powder charges:	
a. In hermetically sealed containers.	Y
b. Not in hermetically sealed containers..	Z
Blasting caps, non-electric	V
Blasting caps, electric...	Z
Bombs:	
a. HE, non-cluster type, unfuzed	U
b. Fragmentation and WP unfuzed. ....	W
c. HE, fragmentation, WP, fuzed or packed with fuze, and photoflash. ....	Y
Boosters, all types .....	X
Bursters.....	Y
Canisters, smoke.....	Z
Cartridge actuated devices (CADs)	Y
Cartridge, bomb ejection..	Y
Cartridge cases, primed:	
a. Artillery.....	Z
b. Small arms.....	Y

Cartridge, delay.....	Y
Cartridge, engine starter.	Y
Cartridge, ignition.....	Y
Cartridge, impulse.....	Y
Cartridge, photoflash.....	Y
Cartridge, powder actuated	Y
Charge, practice, hand grenade	Z
Coupling base with primer	Y
Cutters	Y
Delay elements and delay plungers:	
a. Hermetically-sealed elements.....	Y
b. Not hermetically-sealed.....	Z
Demolition kit, projected charge.....	X
Demolition block charges, C4 or TNT.....	V
Demolition block charges (except C4 or TNT).....	X
Destroyers, all types (document, Cryptographic equipment, file)	Z
Destructors.....	Y
Detonating cord:	
a. In hermetically-sealed container.....	W
b. Not in hermetically-sealed container.....	<b>Z</b>
Detonation simulator, explosive M80.....	Z
Detonators.....	Y
Dispenser, aircraft mine, M56 and practice M132 loaded, and reload kits.....	Y
Dispenser, riot control.....	Z



Dynamite, military (see para H-12 for commercial dynamite).....	Y
Expelling charges:	
a. Black powder filled....	Z
b. Propellant filled.....	Y
Explosive bolts.....	X
Fire starters.....	Z
Firing devices.....	Y
Flares.....	Z
Fuse, blasting, time.....	Z
Fusees.....	Z
Fuzes, all types except fuzes with black powder time train rings or unsealed black powder delay elements:	
a. In hermetically-sealed containers.....	W
b. Not in hermetically- sealed containers.....	Y
Fuzes containing black powder time train rings or unsealed black powder delay elements..	Z
Grenades:	
a. HE, HEAT, offensive, WP, practice with explosive components.....	Y
b. Colored smoke, HC, incendiary, riot control...	Z
c. Practice, without explosive component, inert.....	W
High explosives, bulk.....	X
Igniters, all types.....	Z
Ignition cylinders.....	Z
Incendiary devices, all types	Z
Increment, propellant.....	Y
Inert ammunition, all types..	W

Inert components and metal parts for ammunition items	W
Initiators for bomb fuzes	X
Launcher and 35-mm cartridges CS	Z
Launcher and grenade, smoke M176, M226.....	Z
Mines:	
a. APERS, AT, <b>and</b> practice with explosive components...	X
b. Practice without explosive components, inert, empty.....	W
Packing materiel.....	R
Primers:	
a. Artillery.....	Z
b. Small arms.....	Y
Projectiles, separate loading and Naval separated:	
a. Fuzed or unfuzed ADAM, RAAM, illuminating, practice with explosive components, 155mm M483A1.....	Y
b. Fuzed HERA, baseburner, WP	Y
c. Unfuzed HERA, baseburner WP	W
d. Fuzed HE (except ADAM, RAAM, 155-mm M483A1)...	Y
e. Unfuzed ICM HE (except ADAM, RAAM, 155-mm M483A1)	W
f. Unfuzed non-ICM HE (except 8-inch M424....	U
g. 8-inch M424.....	X
h. colored smoke, HC..	Z
Projectile 64-mm, riot control M742, M743.....	Z
Propellant actuated devices (PADs)	Y
Propellant, bulk and component charges.....	Y
Propelling charge, separate loading:	
a. First interval.....	R
b. Subsequent interval	V

Reducer, flash.....	Y
Rocket motors.....	X
Rockets, complete rounds:	
a. Flechette, HE, WP, RP, MPSM and practice.....	X
b. Flare and illuminating	Y
c. Incendiary, riot control	Z
Shaped charges.....	Y
Signals.....	Z
Simulators.....	Z
Smoke pots.....	Z
Spotting charges.....	Z
Squibs.....	Z
Supplementary charges.....	X
Thermal batteries.....	X
Thickener.....	Z
Thrusters.....	Y
Tracers, all types.....	Y
Warheads, warhead sections:	
a. Flechette, HE, WP, RP, and practice with explosive components.....	X
b. Flare and illuminating	Y
c. Incendiary, riot control	Z

NOTE: Propelling charges for separated ammunition for naval guns are inherently different from other propelling charges. They are essentially like fixed cartridges in their deteriorative properties. Therefore, consider them as coming under ammunition, fixed, category W. Separated projectiles come under Fuzed HE (except ADAM, RAAM, 155MM M483A1), Category Y.

**Table 2-2. Periodic Inspection Categories**

Category	Interval
R	10
S	9
T	8
U	7
V	6
W	5
X	4
Y	3
Z	2

**Table 2-3. Sample Sizes and Acceptance/Rejection Numbers.**

Item	Note	Sample Size		Accept/Reject Numbers (defectives)					
		SAA	Other	Critical		Major		Minor	
				AC	RE	AC	RE	AC	RE
Outer pack .....	(1)	20	20	0	1	1	2	2	3
Inner pack .....		20	20	0	1	1	2	2	3
Belt, 5.56-mm.....	(2)	10	.....	0	1	1	2	1	2
Belt, 7.62-mm.....	(3)	10	.....	0	1	1	2	1	2
Belt, cal .30.....	(3)	10	.....	0	1	1	2	1	2
Belt, cal .50.....	(3)	10	.....	0	1	1	2	1	2
Belt, 20-mm.....	(3)	10	.....	0	1	1	2	1	2
Belt, 30-mm.....		10	.....	0	1	1	2	1	2
Item (Other)(Individual Lot) .....			20	0	1	1	2	2	3
Item (Other)(Cluster Lot).....			32	0	1	1	2	3	4
Item (SAA)(Individual Lot).....	(4)	300	.....	0	1	14	15	21	22
Item (SAA)(Cluster Lot).....	(4)	300	.....	0	1	10	11	21	22

**Notes to Table 2-3:**

- (1) Inner pack and item samples must be selected from a minimum of ten outer packs. Additional outer packs must be inspected at either the inspection or storage location(s) to make a total sample size of 20.
- (2) If rounds are linked, a belt consisting of 6 links and 6 cartridges shall be capable of withstanding a tensile load of 19 lbs minimum without separation. Load shall be applied at a uniform rate and belt shall remain under tension for a minimum of 30 seconds.
- (3) If rounds are linked, a belt consisting of 25 cartridges and 25 links shall be capable of withstanding a tensile load of 25 lbs for 7.62-mm and cal .30, 80 lbs for cal .50, and 115 lbs for 20-mm without separation. Load shall be applied at a uniform rate and belt shall remain under tension for a minimum of 30 seconds. No test for belts of 30mm is required.
- (4) For the purpose of table 2-3, SAA is defined as up to and including caliber .50.
- (5) Chapter 12 contains accept/reject criteria for Security Assistance Program inspections.

CHAPTER 3  
SURVEILLANCE OF AMMUNITION BY TESTING

3-1. General.

Tests are performed at designated storage installations, ammunition test facilities, or laboratories according to procedures in the item's SB or ammunition surveillance test procedures (ASTP). These SBs and ASTPs prescribe the sample size, equipment to be used, test methods, data to be recorded, and the criteria for evaluating the lot tested. Small Arms tracer ammunition and items evaluated by the CCFTP selected for security assistance program customers will comply with chapter 12. **All candidate lots under test should be considered as functionally serviceable by the shipping installation unless otherwise notified by IOC.**

3-2. Small Caliber Stockpile Reliability Program (SCSRP) for Small Arms Ammunition (SAA).

a. Testing of SAA will be accomplished under a centralized control program managed by IOC Quality Assurance and Assessment Directorate.

(1) IOC will annually distribute a list of lots nominated for testing. IOC should be notified concerning availability of candidate lots.

(2) Appropriate management controls must be established to ensure the program is executed. The storage installation surveillance organization will monitor shipping actions to ensure arrival of surveillance samples at the test facility on or before the required delivery date (RDD).

b. Selection and preparation of samples for shipment to a test facility will be as follows:

(1) Samples are to be selected to assure proper representation of the lot.

(2) Ammunition lots should be in CC-A at the time of test. To ensure that the nominated lot has had no significant change since the last inspection, all lots with inspection intervals expiring prior to the RDD for the samples will undergo a periodic inspection prior to or during sample selection.

(3) Shipment of two or more lot samples within one shipping container is permissible provided each lot sample is fully identified and separated. Different models and types are also permissible within the same shipping container, provided positive identification of samples is maintained.

(4) Correct NSN and DODIC for the functional lot will be stenciled on the outer packing boxes and must agree with the NSN/DODIC shown on the shipping documents. Shipping documents and containers will be annotated "FOR SURVL TEST FY-- SCSRP".

**CHAPTER 7**  
**TOXIC CHEMICAL MATERIEL**

**7-1. General.**

a. This chapter contains specific instructions relative to surveillance operations involving toxic chemical munitions (TCM) and agents. Surveillance operations will be performed using this publication, other SBs, TMs, drawings, specifications, local SOPs, and applicable publications. Under particular situations, however, certain TCM and agents have been classified as hazardous waste items. Therefore, these specific items are also regulated under the Federal Resource Conservation and Recovery Act (RCRA) or an equivalent state authorized program for waste management. The instructions in this chapter shall in no way supersede or diminish the requirements placed on an installation by other federal, state, or local regulations, requirements, or agreements. Personnel involved with surveillance operations shall coordinate their activities in this chapter with the appropriate installation personnel who are responsible for the installation's environmental compliance.

b. Periodic inspections will no longer be performed on TCM and agents. Surveillance will, nonetheless, emphasize those inspections/operations that are necessary to assure items are safe for storage, on-post movement, and demilitarization. Such efforts may involve, but are not limited to, storage monitoring, leaker isolation/containerization, special inspections, and assessments.

c. Technical assistance. The U.S. Army Chemical and Biological Defense Command, Stockpile Operations Group, ATTN: AMSCB-SO, Aberdeen Proving Ground, MD 21010-5423, will provide technical assistance at the request of a chemical installation. All abnormal conditions encountered during surveillance operations will be reported in memorandum format via e-mail or datafax to the above.

**7-2. Definitions.**

a. *Confirmed Agent Reading (confirmed detection)*. A second method of detection, of equal or greater sensitivity than the first method, that yields a second positive reading.

b. *Containment*. Actions taken to stop any form of agent leakage, whether it be from munitions, bulk container, or packed/overpacked items.

c. *Filter Units*. For the purpose of this document, are any type equipment designed to be attached to a storage structure containing leakers to create a negative air pressure in the storage structure. Use of this type equipment will create a closed containment system as defined in AR 50-6.

d. *Inspection Intervals*. As listed in Table 7-1, two intervals are identified for the SMI of chemical surety items.

(1) Quarterly inspection interval. Quarterly inspection implies one inspection per quarter at approximately 90-day intervals. By exception, this interval may be extended for a period of 30 days.

(2) Annual inspection interval. Annual inspection implies one inspection per year at 12-month intervals. By exception, this interval may be extended for a period of 3 months.

(3) Any extension of intervals will be at the discretion of the activity QASAS in charge. When intervals are extended, subsequent inspections may be scheduled based upon either the originally forecasted date of inspection or actual date of completion. All extensions will be documented and the documentation retained locally.

e. *Leaker Lot.* A munition lot designated by CBDCOM, or formerly designated by AMCCOM, as having a history of leakage and requiring surveillance or monitoring above and beyond normal requirements. Should a munition lot be stored at more than one installation, it will be declared by CBDCOM as a leaker lot for a specific location when it has met the criteria for declaration as a leaker lot at that location. The use of the term leaker lot within the context of this supply bulletin does not imply that all munitions within the lot are leaking.

f. *Overpacked Munitions.* Items previously identified as leakers, warheads from M55 rocket assessment, items found on post, recovered items, and Surveillance Program Lethal Chemical Agents and Munitions (SUPLECAM) samples which have been drilled and plugged that are containerized to preclude escape of agent. Bulk agent in ton containers or munitions in original shipping and storage containers, such as spray tanks and M23 mines are not considered to be overpacked.

g. *TWA.* As used in this SB, TWA is the Airborne Exposure Limit (AEL) for unprotected workers IAW AR 385-61.

**7-3. Equipment Calibration.** Prior to an inspection or test, equipment requiring calibration will be inspected for a valid calibration label/date to verify that the calibration interval and equipment limits have not been exceeded.

**7-4. Types of Inspections.**

a. *Storage Monitoring Inspection (SMI).* SMIs will be conducted as indicated in Table 7-1 regardless of condition code. Each storage configuration (package, container, or item) will be visually inspected for evidence of leakage, condition of the outer pack, dunnage, or any other condition affecting suitability for continued safe storage, to the extent possible, without rewarehousing. Items, whether in original shipping and storage container or overpacks, will have outer pack inspected without opening.

TABLE 7-1  
SMI REQUIREMENTS FOR TOXIC CHEMICAL ITEMS

ITEM	NOT OVERPACKED	OVERPACKED
Ton Containers	Quarterly	N/A
Mines	Annual	Quarterly
Projectiles/Cartridges	Annual	Quarterly
Bombs	Annual	Quarterly
Spray Tanks	Quarterly	Quarterly
DOT Bottle	Quarterly	Quarterly
Rockets	Quarterly	Quarterly
SUPLECAM Samples	Quarterly	Quarterly
M56 Warheads	N/A	Quarterly
Binary	Quarterly	N/A

b. *Special Inspections (SI)/Assessments.* Will be performed as directed by CBDCOM.

c. *Magazine Inspection.* Will be performed IAW Chapter 10 of this publication.

d. *Storage Structure and Site Air Sampling.* All TCM storage structures and sites will be monitored quarterly to TWA. Igloos containing leaker lots of non-overpacked M55 GB rockets will be monitored to TWA once every normal duty day, and those with non-leaker lots or overpacked leakers will be monitored a minimum of once weekly.

**7-5. Detection, isolation, and containerization of leaking munitions and/or containers (hereinafter referred to as leakers).**

a. Testing munitions for agent leakage will be performed with the appropriate equipment and methods, as defined in AR 385-61, DA Pam 385-61, and supporting publications. Selection of equipment and procedures should be based upon compatibility with the operation to be performed and, to the extent practicable, should incorporate the most sensitive and accurate technology available. Departures from this approach will be justified and documented in the leaker report. The proper use, maintenance, and calibration of equipment will be IAW applicable equipment or users' publications, TMs, TBS, and/or the organization's chemical agent monitoring plan and supporting Quality Assurance/Quality Control (QA/QC) plan.

b. The prompt identification, isolation, and containment of all agent leakage is of primary concern to ensure the safety of workers, the general public, and the environment. Monitoring is conducted IAW specified requirements for the type of munition or agent in storage, and prior to entry for the conduct of operations. If the presence of leaking agent is confirmed, steps will be initiated to ensure that isolation and containment operations are accomplished.

c. The activity commander must evaluate safety and environmental risks associated with leakers prior to commencing or suspending leaker isolation operations. Risk assessment factors to be considered should include impending nightfall, weather conditions, protective clothing wear times, time of day, availability of personnel, supplies, or equipment, or any other condition that impacts risk. Regardless of actions taken, the storage structure containing suspected leakers will be continuously filtered and monitored IAW the chemical activity agent monitoring procedures. It is not necessary to perform isolation and containment operations during non-duty hours if leakers are in a filtered structure or other closed containment system as defined in AR 50-6.

**\*\*\* NOTE \*\*\***

Upon confirmed detection of any agent, in addition to notifying CBDCOM IAW paragraph 7-7, the installation office designated to prepare the chemical event report, as required by AR 50-6, shall be notified.

d. If monitoring of ton containers in open storage produces a confirmed, positive reading, leaker isolation procedures will begin immediately, regardless of concentration level. After isolation and repair of the leaking ton container is completed, monitoring of the repaired container will continue until the presence of agent can no longer be detected. Storage monitoring of the open storage location will be completed if not previously accomplished.

e. The following procedures apply to chemical munitions and storage containers stored in enclosed structures.

(1) Agent detected:

(a) Close storage structure vents.

(b) Perform confirmation procedures. If confirmation is positive (at/or above detection limits), follow procedures contained in subparagraph 7-5e(2) or (3) as appropriate. If confirmation is negative (below detection limits), the storage structure will not be considered contaminated; however, actions will be taken to assess the cause of the false positive results. Storage structure vents may be opened.



(2) Agent confirmed below TWA.

(a) Vents remain closed.

(b) Install filter units and open vents.

(c) Monitor structure. If lower concentrations than previously detected are noted, consideration will be given to running the filter units for a period of time prior to starting leaker isolation and containerization procedures in order to reduce the level of potential exposure to personnel.

(d) **Leaker isolation and containerization may commence any time after filter units are installed and the presence of agent is confirmed.**

(e) If subsequent monitoring results are negative, the storage structure will be monitored for 3 consecutive workdays. If results are negative, filtration may cease and no further action is required.

(f) If results are positive, but below the TWA value, filtration will continue, and at the discretion of the chemical activity commander or his designated representative, leaker isolation and containerization operations may commence or be delayed with additional monitoring planned.

(g) If results are positive and at or above TWA, leaker isolation and containerization procedures in paragraph 7-5e(3) will commence.

(3) Agent confirmed at or above TWA:

(a) Vents remain closed.

(b) Install filter units and open vents. Filter units will remain in operation until leaker isolation and containerization operations are completed, and negative monitoring results obtained for three consecutive monitoring periods.

(c) Begin leaker isolation and containerization procedures.

(d) An inspection of the materiel in storage will be conducted to the maximum extent possible without rewarehousing in an attempt to visually locate the source of the contamination. Packaged items will have the outer pack inspected without opening. Peeling, discolored, or blistered paint, or the presence of liquid are considered evidence of possible leakage. Positive tests will be confirmed with a second test. The presence or absence of leakage will be as indicated by the second test.

(e) If during visual inspection the leaking item cannot be located, individual stacks, pallets, or items will be shrouded for additional localized monitoring.

(f) Shrouding consists of covering individual stacks, pallets, or items with any type of plastic sheeting **(or in the case of individual items, a locally approved container)** in order to create a separate environment **and concentrate agent** for monitoring purposes. Proper shrouding is accomplished using plastic sheeting free of rips and tears. Suspect stacks or pallets should be completely enclosed from top to the floor. It is not necessary for the enclosure to be taped or otherwise sealed to the floor. Shrouding individual items or containers may involve completely enclosing the suspect item or probable source of leakage.

1 Shrouding will be completed with minimal rewarehousing.

2 Individual shrouded stacks, pallets, or items will be monitored using low-level monitoring procedures in order to isolate specific stacks, pallets, or munitions with elevated readings.

3 Shrouded stacks, pallets, or items with elevated readings will be visually inspected and monitored in order to further isolate the leaker(s).

4 If operators elect to use a container to concentrate agent vapor, items that are not confirmed as leakers must be removed from containers after isolation is completed.

(g) For M55 rockets, intrusive low-level monitoring of the shipping and firing container may be required to confirm the presence of leaking agent.

(4) When the leaking item is located, it will be repaired and/or containerized as soon as practical. Leakers should only be containerized after all other approved containment procedures have been attempted. Use of leaker overpacks must be minimized due to the resultant loss of visibility of energetic components and the increased difficulty in demilitarization that the overpacks create. However, safety will take precedence in any decision to containerize leakers. Vapor leakers should not be decontaminated. A heavy-grade plastic bag, 4 mil or thicker, may be used as an interim drip container for leaking liquid agent. Liquid leakers should not be decontaminated unless it will reduce the spread of liquid contamination or reduce the potential for personnel exposure during containerization. No water or decontamination solution (except residual liquid on the item), sand, vermiculite, or other material, except interim drip bags, will be placed in overpack containers with leaking munitions. When drip bags are present, care must be taken to avoid tearing or catching bags between gaskets and flanges during packaging. All records regarding leaker packaging will include remarks on the absence or presence of drip bags. This includes DSR card, DD Form 1577, leaker report, and any other applicable record.

(5) Leakers overpacked in propelling charge containers will be transported and stored vertically with the lid up. The round will be placed into the container base first.

f. Leaker containment procedures for selected items. When overpacks are required, they will be selected from Table 7-2.

(1) Leaking 105mm and 4.2-inch cartridges. Leakers should not be repackaged in a fiber container if the original fiber container can be removed. Propellant should be removed from 4.2-inch and 105mm cartridges, whenever possible, and packaged separately prior to containerization. If possible, and without the use of excessive force, the 4.2-inch M3 ignition cartridge should also be removed from the round. A 105mm cartridge case and projectile should be containerized separately. Annotate records to fully identify the packaging configuration of the containerized cartridge.

(2) M23 land mines. Leaking mines encountered during the course of an operation will be returned to their original drum, if serviceable. If the original drum is unserviceable, the mines along with the original unserviceable drum will be overpacked.

(3) Overpacks that are stored vertically and appear to be leaking agent vapor from the lid/gasket area will have their gasket and/or lid replaced before additional containerization is considered. Leaking overpacks that are stored horizontally will not be repaired due to the potential for liquid agent release. They, as well as overpacks that are leaking from areas other than the lid gasket area, or for which gasket/lid repair is unsuccessful, will be placed into secondary overpacks.

(4) Leaking ton containers.

#### **WARNING**

With time, the threads of brass plugs and valves on GB ton containers have been known to fail. To preclude dislodging a valve from a leaking GB ton container, no attempt will be made to tighten the valve stem(s) or cap(s), nor will any attempt be made to tighten a leaking plug.

(a) Upon detection of a leaking GB ton container valve or plug, all valves and plugs on that container will be replaced with steel plugs manufactured IAW drawing numbers SK 69-4-30 (valve) and SK 72-6-5 (plug).

(b) Upon detection of a leaking VX or H-agent type ton container valve or plug, the following will be accomplished:

1 If a valve leaks from the safety cap or packing nut, the valve stem should be tightened and the area decontaminated. Follow-up inspections shall be accomplished within three days and again after one week to verify effectiveness of corrective action.

2 If the valve leaks from threaded area, replace both brass valves with steel plugs.

3 Leaking plugs will be replaced with steel plugs. When leaking plug(s) is replaced, all brass plugs on affected end of ton container will be replaced.

(c) Upon detection of a leaking GB ton container with steel plugs, in lieu of brass valves and plugs, the leaking plug will be tightened. Should tightening of the steel plug not mitigate the leak, the steel plug shall be replaced.

(d) If replacement of valves or plugs does not correct leaking condition, container contents will be transferred to a serviceable ton container.

g. For items not listed above, refer to Table 7-2 for applicable overpack.

h. *Overpack Marking Requirements.*

(1) Overpacks used in the containerization of leakers will be painted gray and marked with a green stripe and, if applicable, a yellow stripe indicating explosive content, around the circumference of the container. A properly-prepared DD Form 1577 (Unserviceable [Condemned] Tag-Material) must be attached. Configuration of 105mm and 4.2-inch cartridges, presence or absence of fibers and drip bags, type leaker, and leaker report number will be annotated on the tag. Additionally, the following data will be stenciled on the container:

(a) NSN and DODIC.

(b) Nomenclature.

(c) Lot number.

(d) Quantity.

(e) Date packaged.

(f) Type leaker.

(g) Leaker report number as assigned by Surveillance.

(h) "NOSE END" on appropriate end of rocket container.

(2) Paragraph 7-5h(1) does not apply to containerized leakers already in storage.

#### **7-6. Overpacks for TCM and Agents.**

a. This section provides a listing of approved types of overpacks for containerization of TCM and agents identified as leakers. Unless otherwise specified, listed overpacks are for depot storage and intra-depot movement only. Overpack requisitioning procedures, inspection criteria, and storage requirements are also included.

b. Table 7-2 lists overpacks authorized for containerization of specific items. Primary overpacks are intended for use in the packaging of individual TCM and agent items identified as leakers. Secondary overpacks are intended for use in the packaging of primary overpacks which contain leaking TCM or agent items. Containers are listed in Table 7-2 in descending order of preference for use. In part, this ranking is based upon leakage test results which generally indicate that propelling charge containers with a lesser circumference provide better agent containment at the gasket-flange interface. This characteristic should be considered during the conduct of hazard analyses/risk assessments which support leaker containerization and overpack operations. Use of overpacks other than those identified in Table 7-2 require prior approval of HQ, CBDCOM, AMSCB-SO, Aberdeen Proving Ground, MD 21010-5423.

c. Leakers containerized prior to publication of this criteria will not be repackaged solely to meet this criteria.

TABLE 7-2  
APPROVED OVERPACKS FOR STORAGE OF TOXIC CHEMICAL MUNITIONS

Item		Primary Overpack and National Stock Number (NSN)		Secondary Overpack & NSN
1. M55 Rkt	GB&VX	M55 Single Round Container (SRC),	8140-01-286-0482	<b>10" x 96" SRC</b> <b>No NSN assigned</b>
2. 4.2	Inch	a. ID set M1, 8110-00-340-2006 b. Prop Chg M14A2, 8140-00-859-8017 c. Prop Chg M13A2, 8140-00-864-3221 d. Prop Chg M18A1, 8140-00-827-0510 e. Prop Chg M18A2, 8140-00-369-9118 f. Prop Chg M16A2, 8140-00-369-9120 g. Prop Chg M16A3, 8140-01-219-2277		a. Prop Chg M10A4, <sup>1</sup> 8410-00-891-6194 b. Prop Chg M460A2, 8140-00-891-6162 c. M-500 (Modified) 8140-01-386-5927
3. 105mm only	Proj	a. ID set M1, 8110-00-340-2006 b. Prop Chg M14A2, 8140-00-859-8017 c. Prop Chg M13A2, 8140-00-864-3221 d. Prop Chg M18A1, 8140-00-827-0510 e. Prop Chg M18A2, 8140-00-369-9118 f. Prop Chg M16A2, 8140-00-369-9120 g. Prop Chg M16A3, 8140-01-219-2277		a. Prop Chg M10A4, <sup>1</sup> 8410-00-891-6194 b. Prop Chg M460A2, 8140-00-891-6162 c. M-500 (Modified) 8140-01-386-5927
4. 105mm w/CtgCse		a. ID Set M1, 8110-00-340-2006 b. Prop Chg M13A2, 8140-00-864-3221 c. Prop Chg M16A2, 8140-00-369-9120 d. Prop Chg M16A3, 8140-01-219-2277		a. Prop Chg M10A4, <sup>1</sup> 8410-00-891-6194 b. Prop Chg M460A2, 8140-00-891-6162 c. M-500 (Modified) 8140-01-386-5927
5. 155mm	Proj	a. Prop Chg M16A2, 8140-00-369-9120 b. Prop Chg M16A3, 8140-01-219-2277		<b>a. 12"x56" SRC</b> <b>8140-01-375-7070</b> <b>b. Prop Chg M10A4</b> <b>8410-01-891-6194</b> <b>c. M-500 (Modified)</b> <b>8410-01-386-5927</b>
6. Proj 8-Inch		a. Prop Chg M10A4, 8140-00-891-6194 b. M500 (Modified), 8140-01-386-5927 Pending Approval)		12"x56" SRC 8140-01-375-7070
7. M23 Mines		Original Storage Container		<b>Secondary Steel Container</b> <b>8140-01-310-6929</b>
8. MK94 500lb Bomb (pallet- ized)		AGM-12c Bullpup (Modified IAW DMWR 3-1325-E388-P1)		See Paragraph 7-6b
9. MK94 500lb Bomb (contain-erized, JI only)		Original Storage Container		See Paragraph 7-6b
10. MC-1, 750lb Bomb		AGM-12c Bullpup (Modified IAW DMWR 3-1325-E388-P1)		See Paragraph 7-6b
11. MK116 Weteye		Original Storage Container		See Paragraph 7-6b
12. TMU28/B Spray Tank		Original Storage Container		See Paragraph 7-6b
13. DOT Bottles		See Paragraph 7-6b		See Paragraph 7-6b

NOTES:

1. ID set M1 will not fit in M10A4, 12"x56" SRC is the approved overpack for the ID set M1.

d. *Requisitioning Procedures.* Overpacks may be requisitioned through normal supply channels. Questions pertaining to supply status of these containers will be referred to the National Inventory Control Point (NICP) (Commander, Industrial Operations Command, ATTN: AMSIO-SMA-D, Rock Island, IL 61299-6000).

e. *Overpack Inspection and Storage Requirements.*

- (1) These requirements are applicable to containers authorized for use as overpacks for leaking chemical munitions and leaking overpacks in depot storage. Requirements presented herein do not supersede requirements of the Resource Conservation and Recovery Act (RCRA) or state environmental laws. Installations must ensure compliance with all current Environmental Protection Agency (EPA) regulations pertaining to these munitions and incorporate such information in local policy or SOPs, where appropriate.
- (2) If procedures and requirements presented here are in conflict with those provided in container-specific Letters of Instruction or similar work instructions, container-specific procedures will take precedence.
- (3) Inspection requirements and intervals are established to ensure that a serviceable stockpile of overpack containers is available to address current and future leaker contingencies. Installation personnel must compile and retain records of all inspections. Periodically, this information will be requested by the NICP/NMP to assess long-term container performance. All container defects must be recorded (by serial number, if applicable) even if user maintenance is successful and the container is suitable for use.
- (4) Rejected overpacks that cannot be repaired at the user level will be assigned CC-F and reported by memorandum to the NICP (Commander, U.S. Army Chemical and Biological Defense Command, ATTN: AMSCB-SO, Aberdeen Proving Ground, MD 21010-5423). The memo should identify whether the container(s) is maintained in the wholesale account, local retail account, or as a contingency item.
- (5) Receipt Inspection. Inspections should be performed in a clean, dry environment, protected from adverse weather conditions. Inspections should not be performed by individuals dressed in butyl rubber protective clothing. Installations will perform inspection for damage-in-transit when overpacks are received directly from a government or contractor production facility and the overpacks have been subjected to 100 percent leak testing and inspection by the manufacturer. Containers not specifically designed or modified to serve as overpacks (e.g., propelling charge containers) and/or containers which were not subjected to 100-percent leak testing and inspection by the manufacturer, will be 100-percent tested and inspected IAW general and specific guidelines, as applicable, presented in paragraph 7-6e(6).
- (6) Periodic Inspection. Inspections should be performed in a clean, dry environment, protected from adverse weather conditions. Inspections should not be performed by individuals dressed in butyl rubber protective clothing.
  - (a) 100 percent of contingency stocks stored at user installations will be visually inspected and leak tested every 2 years IAW Tables 7-3 and 7-4. In addition, individual containers must be tested immediately prior to use, unless scheduled leak testing has occurred within the preceding 90 days. Contingency stocks are defined as those quantities of containers issued to local retail accounts that are projected for use during a two-year period. Two-year projections will be based on local leaker histories or, by exception, can be directed by higher headquarters.

(b) Overpack containers that are (1) retained in the wholesale account, under control of the NICP or (2) issued to local retail accounts, but not designated as contingency stocks, will undergo a Periodic Inspection (PI) so that 20 percent of the containers are visually inspected annually and 100 percent of the stockpile is inspected each 5 years. Inspection criteria reflected in Tables 7-3 or 7-4 applies. A leak test is not required, but may be performed at the discretion of the inspector, if serviceability is in question based upon visual inspection. Holders of these stocks should forecast budget requirements accordingly.

(c) Leak Testing. Single Round Containers (SRCs) and propelling charge containers will be leak tested using the Defense Ammunition Center Validation Engineering Leak Detection System. Operator instructions for using this equipment are reflected in the Defense Ammunition Center publication, "Portable Helium Leak Test of Overpack Containers - Operational Manual and Parts List for Harris Regulator Model 415-125 Type A Helium Dispenser, *Matheson LeakHunter Plus 8066*". The manufacturer's User Manual accompanying the *Matheson LeakHunter Plus 8066* should also be consulted by planners and operators prior to leak testing. Containers, which successfully pass this leak test, can be assured of having an agent containment capability of at least  $1 \times 10^{-4}$  cc/He/0.5psi/sec. Leak tests must be conducted during biennial inspections and immediately prior to use, unless leak testing was performed within the preceding 90 days. A tag or label will be affixed to each overpack container indicating the date and results of last test.

- 1 For SRCs (except M55 SRCs) and modified overpacks assembled with shipping and storage O-rings (normally Buna N or Neoprene) and pre-packaged O-rings (normally Butyl rubber), the shipping and storage O-ring should be installed to perform leak testing. The pre-packaged O-ring is to be used only during actual containerization operations.
- 2 For M55 SRCs assembled with pre-packaged Teflon seals, a single Teflon seal should be used repeatedly until a test failure is encountered. Upon failure, the test seal will be destroyed and discarded, and a new test seal will be used. Extra Teflon seals, NSN 5330-01-302-0054, should be requisitioned from the NICP.
- 3 The AGM-12C BullPup Container will be leak tested using the APE 1052 modified with a gauge indicating a pressure range of 1-5 psi. The test will be conducted at 3 psi, with no pressure loss noted over a 3-minute period.
- 4 Secondary Steel Containers do not require a leak test unless directed by the NICP/NMP.

(7) All overpack containers will be visually inspected immediately prior to use, applying applicable portions of paragraph 7-6e(8) and Table 7-3 or 7-4.

(8) Care and handling of SRCs during Inspection. The following special precautions are to be observed during inspection, preventive maintenance, and preparation-for-use operations involving SRCs. If container-specific procedures are in conflict with guidelines published here, container-specific procedures will take precedence.

a) The condition of the flange sealing surface and cover is critical to container performance. Care must be taken to prevent damage to these surfaces during inspection and testing. Foreign substances of any kind, to include skin oil, may interfere with obtaining a good seal. Particular care must be taken with unpainted flange or cover surfaces.

(b) Unpainted flanges and covers should be thoroughly cleaned with a specified solvent and liberally coated with a specified rust preventive coating after inspection and/or testing. Authorized solvents and rust preventive are listed below. Lubrication of the seal is not required.

1 Authorized solvents are Wipe Solvent DS-104 or Wipe Solvent DS-108. The previously specified solvent, Trichlorotrifluoroethane (Freon 113) is an Ozone Depleting Substance (ODS). Further use of Freon 113 is banned. Pertinent packaging and ordering information is provided below.

Wipe Solvent, DS-104:	NSN 7930-01-367-1000	4 ea x 1 gallon container
	NSN 7930-01-367-1001	24 ea x 16 oz squeeze tube

Wipe Solvent, DS-108:	NSN 7930-01-367-0995	4 ea x 1 gallon container
	NSN 7930-01-367-0994	24 ea x 16 oz squeeze tube

2 The preferred rust preventative is Grease, MIL-G-14931. Acceptable substitutes are Grease, Silicone, MIL-G-46886; or Dow Corning Vacuum Grease, 2021846-0888. No NSN or military specification has been assigned to Dow Corning Vacuum Grease. It may be procured through a regional Dow-Corning sales representative.

f. Propelling charge container lid closure torque values are provided below:

(1) M10A4 225-350 inch-pounds	(5) M16A3 200-325 inch-pounds
(2) M13A2 200-325 inch-pounds	(6) M18A1 225-350 inch-pounds
(3) M14A2 175-300 inch-pounds	(7) M18A2 225-350 inch-pounds
(4) M16A2 200-325 inch-pounds	(8) M460A2 225-350 inch-pounds

Test plugs for all propelling charge container lids are to be seated with a torque of 2.5 foot-pounds (at least 30 inch-pounds) minimum.

g. ID Set M1, 8110-00-340-2006, lid closure torque requirements follow:

The bolts/nuts shall be torqued diametrically opposed from each other to 30 foot-pounds (plus or minus 2 foot-pounds). In addition, bolt threads must be fully engaged to nut. A minimum of two threads must extend from the nut after torque.

h. M55 Single Round Container (SRC), 8140-00-286-0482: torque inspection plug to 25 ft-lbs (300 inch-lbs). For container cover, cross torque bolts in 20 ft-lbs (240 inch-lbs) increments to 60 ft-lbs (720 inch-lbs).



TABLE 7-3  
SINGLE ROUND CONTAINER (SRC) INSPECTION CRITERIA  
(M55, 12" NONSTANDARD, M500)

CHECKPOINT	CORRECTIVE ACTION
<u>Container body</u> Cracks or holes. Dents which preclude use. Dents which do not preclude use. Missing or damaged components.	Reject container. Reject container. None required. Reject container.
<u>Sealing flange machined surface</u> Scratches which would prevent proper sealing. Foreign material, rust, dust, Paint chips, etc. <u>Flange bolt hole</u> Threads damaged.	Reject container. Clean and apply rust preventive.* Reject container.
<u>Cover</u> Cracks or holes. Missing or damaged component. Serial number (S/N) does not match container body (when applicable). Loose inspection plug. Scratches in sealing surface/groove. Foreign matter, rust, etc., in seal groove.	Reject container. Reject container. Attempt to find matching S/N. If not possible, perform leak test. Apply Teflon sealant (tape or liquid), torque 25ft-lbs min. Reject container. Clean and apply rust preventative.*
<u>Container Seal</u> Teflon seals: Flat spots, irregularities, deformation, or scratches. O-rings: Cuts, irregularities, hardness, or deformation.	Destroy seal. Request replacement from NICP, AMSIO-DSD-A. Destroy seal.
<u>Bolts</u> Damaged bolt or threads.	Replace bolt.
<u>Container Assembly</u> Fails Leak Test.	Reject container.**

\*Leak test container upon completion of maintenance. If the rust cannot be removed with no coarser than fine grade steel wool and a soft rag, or there are pits or rough surfaces caused by the rust, reject the container(s).

\*\*After initial failure, retest with a new teflon seal or o-ring. If failure occurs a second time, reject container.

TABLE 7-4  
INSPECTION PROCEDURES FOR PROPELLING CHARGE CONTAINERS

CHECKPOINT	CORRECTIVE ACTION
<p>Metal container lid gasket missing, out of place, damaged, or deteriorated.</p> <p>Failure to pass leak test.</p> <p>Air sampling plug missing.</p> <p>Damaged threads on air sampling plug/port.</p> <p>Container dented precluding use; i.e., munition would not fit into container, container would not seal.</p> <p>Foreign material, rust, dust, paint chips, etc., which would not allow container sealing or allow markings to be stenciled on the container.</p>	<p>Replace gasket.</p> <p>Replace gasket and retest. If fails second time, reject container.</p> <p>Replace plug.</p> <p>Replace sampling plug/lid.</p> <p>Reject container.</p> <p>Repair and renovate container to serviceable standards. If not possible, reject container.</p>

#### 7-7. Reporting of leaking munitions.

a. All occurrences of confirmed positive agent concentrations will be telephonically reported to CBDCOM Stockpile Operations Group, ATTN: AMSCB-SO, Aberdeen Proving Ground, MD 21010-5423. Should this condition exist for more than 1 day, daily telephonic updates during normal duty days will be provided. As a close-out action, when the positive agent concentration no longer exists, and leaker(s) were found and containerized, a written leaker report will be submitted.

b. Written and telephonic munition leaker reports must contain, as a minimum, the information reflected below in the format provided. If the prescribed format for the munition leaker report is too restrictive to convey details, provide additional narrative. Memorandum reports, as discussed below, will not require a report number, but will include the following information as a minimum.

(1) Report number (will consist of installation acronym, 2-digit calendar year, and a sequential number; i.e., TEAD 96-03).

(2) Date of report (DDMMYY).

(3) Date leaker detected (DDMMYY).

(4) Date leaker located (detected and confirmed) (DDMMYY).

(5) Date leaker overpacked (DDMMYY).

(6) Monitoring operation being performed when agent was first detected and confirmed (be specific, i.e., Daily/Weekly/Quarterly Headwall Monitoring, Ambient Air Monitoring, Breathing Zone Monitoring, etc.).

(7) Nomenclature, national stock number (NSN), and DODIC.

(8) Ammunition lot number and/or serial number (S/N).

(9) Number and type of leakers found to include storage structure number/location.

(10) Physical location of leak, if known; i.e., burster well, activator well, valve, plug, etc. For ton container valve or plug leakers, identify type of metal; i.e., steel or brass. (If brass, were all brass plugs replaced with steel plugs, and both valves replaced with steel plugs?)

(11) Operation being performed when the leaking munition was identified and the presence of agent was both detected and confirmed (be specific, i.e., SMI of M55 GB Rockets, FEM, SMIs, etc.).

(a) Description of test or equipment used to detect leaker (be specific) and agent concentrations, if applicable.

(b) Description of test or equipment used to confirm leaker (be specific) and agent concentrations, if applicable.

(12) Corrective measures taken to ensure safety-in-storage; i.e., decontamination, placed in special overpack, isolated, etc. Give type/model of overpack used. Was drip bag placed in overpack with item?

(13) Hazard or contamination (How much agent was involved?).

(14) Other pertinent information.

c. Items received at demilitarization facilities which leak prior to entry into the explosive containment vestibule will be classified as leakers. The leaker report must describe the ultimate disposition of these items, i.e., whether the items were processed through the demilitarization facility or overpacked and returned to storage.

d. All leaks which are attributable to a mechanism other than stockpile deterioration will be reported telephonically, followed by a written memorandum. Although they will not be assigned a traditional leaker report number, we must formally account for such an occurrence. Examples include:

(1) Leaks which result from ineffective maintenance, e.g., ineffective ton container hardware replacement, being dropped or punctured, etc., cannot be attributed to stockpile deterioration.

(2) Overpacks containing leaking munitions which themselves subsequently leak, are not classified as leakers. Although leaks from overpacks may be the result of container deterioration, the leaking munition should have been reported previously.

(3) Munitions previously drilled, sampled and plugged in support of stockpile reliability testing programs which subsequently exhibit leakage.

(4) Items received at demilitarization facilities which leak after entry into the explosive containment vestibule will not be classified as leakers. If processing can be accomplished, no reporting is necessary. If these items cannot be fully processed and are returned to storage, they will be reported by memorandum.

#### **7-8. Chemical Agent and Munitions Demilitarization Operations.**

a. Chemical agent and munitions demilitarization operations include those performed in support of the Program Manager for Chemical Demilitarization (PMCD) and the Project Managers for Chemical Stockpile Disposal (PMCDSD) and Non-Stockpile Chemical Materiel (PMNSCM). Following requirements list minimum ammunition surveillance duties.

b. Each organization, at every level in the chain of command, will develop a comprehensive Ammunition Surveillance Plan (ASP) which defines their roles and responsibilities in the demilitarization program.

(1) Requirements apply to the contractors operating the chemical demilitarization facilities, government employees monitoring the contractor's performance, PMCD, PMCDSD/PMNSCM field offices and/or COR staff, and host installation commander's oversight staff. It also applies to the government-operated Chemical Agent Disposal System (CAMDS) facility.

(2) The scope of the ASP shall, as a minimum, include the duties and responsibilities of all organizations performing surveillance activities listed in paragraph 7-8d, plus site-specific ammunition surveillance requirements and responsibilities.

c. Because of the requirements of chemical demilitarization plant/facility operations, the ASP shall require qualified personnel to perform ammunition surveillance duties. Regardless of personnel assignments and ASP requirements, the QASAS in charge at the installation supporting demilitarization operations will have oversight responsibility for ASP implementation as it applies to the host installation. The QASAS in charge assigned to, and supporting, CSDP site operations and as a member of the COR staff, will have the authority to act on behalf of the demil facility project manager in stopping operations deemed unsafe, inappropriate, or in violation of regulatory requirements and will facilitate corrective action. Both QASAS will have direct line communication and access to their respective commanders regarding ASP implementation.

(1) Only properly qualified personnel; e.g., QASAS, or government, or contractor personnel with equivalent training, may perform and/or monitor the ammunition surveillance duties listed in paragraph 7-8d. Equivalent training for contractor personnel will be defined in the ASP.

(2) Organizations and/or operations contractors who do not have personnel with QASAS job titles may implement the ASP requirements using a variety of personnel from within their organization; i.e., ammunition surveillance, QA/QC, safety, surety, environmental, operations, etc.

(3) Host installation commander's representatives should receive appropriate demilitarization facility training to provide valid information to the installation commander.

d. Ammunition surveillance responsibilities encompass a number of specific requirements as identified in the local ASP. They are intended to assure accuracy of documentation, control of the operational process, safety and integrity of operations, and the compliance of processed explosives and agent material within established standards (safety, surety, environmental, and demilitarization). Ammunition surveillance activities required to meet the foregoing include, but are not limited to, the following:

(1) Verify the presence of approved operational procedures (SOPs, LOPs, etc.) for operations being performed.

(2) Verify that procedures contain provisions to assure that incoming material receipt documentation correctly identifies the items being demilitarized by proper NSN, DODIC, lot number, quantity, and nomenclature.

(3) Verify the presence and serviceability of all required safety and protective equipment.

(4) Verify that required lightning protection and grounding system inspections and tests have been performed as necessary.

(5) Verify that required calibration/load test for equipment has been performed and is current.

(6) Verify that demilitarization area(s) comply with explosive safety and personnel limits.

(7) Verify that destruction certificates are accurately prepared on a daily basis and copies are maintained.

(8) Verify that all approved operational procedures are complied with.

(9) Verify that noted operational deficiencies are properly documented and reported IAW site-specific ammunition surveillance plan and local procedures. Follow-up verification of corrective actions will be accomplished IAW local procedures to assure deficiencies have been corrected.

#### **7-9. Storage Monitoring Inspection Procedures for Specific Items.**

a. *Ton Container, chemical agent.* Quarterly SMI IAW paragraph 7-4a is required for all ton containers.

(1) Visual. Each container shall be visually inspected for defects as defined in paragraph 2-7 and for evidence of leakage. Liquid, paint peeling, paint discoloration, or paint blistering will be considered as evidence of possible leakage. Vapor tests will be accomplished directly adjacent to container closures or other suspect areas. Leakers will be reported IAW paragraph 7-7 and handled according to paragraph 7-5.

(2) Ends of ton containers will be examined for presence of rust and/or corrosion. Minor rust or corrosion covering 25 percent or less of container end surface will be recorded, for information, on the depot surveillance record card. If minor rust or corrosion exceeds 25 percent of end surface, the container will be placed in CC-E and reported according to DA Pam 738-750. If rust exists on areas immediately adjacent to valves or plugs in sufficient quantity to hinder detection of agent leakage, and derusting and repainting of areas is not performed during inspection cycle, container will be placed in CC-E.

(3) A ton container will be placed in CC-E for derusting, repainting, and remarking when any degree of rust or corrosion threatens to render identification markings illegible.

(4) Cylindrical surface of ton containers will also be examined for presence of rust or corrosion. Containers will be placed in CC-E when rust or corrosion on cylindrical surface has progressed to scaly, granular, or flaked condition accompanied with definite pitting or etching of metal, or with pits or irregular areas of material removed from item surface. Any lesser degree of rust or corrosion on cylindrical surface of containers will not result in a condition code change though it will be recorded for information on the depot surveillance record card.

(5) Ton containers need not be removed from the storage structure or stack solely for visual inspection of areas not accessible while in the normal storage configuration. If visual inspection indicates deterioration, container should be removed and given a more thorough inspection.

b. M55 GB Rockets.

(1) Vapor test. Samples from each lot, as indicated in Table 7-5, will be tested for agent contamination inside the M441 shipping and firing tube. Sampling plan A will be used for lots without leakers. Plan B will be used for lots containing leakers but not designated as leaker lots. Plan C will be used for leaker lots. Grand lots will not be created for the conduct of this test. Unless otherwise mandated by state or federal EPA requirements, there will be no deviation from the following sampling plan. Should state or federal EPA requirements require deviation, sampling plan will be submitted to **Commander, U.S. Army Chemical and Biological Defense Command, ATTN: AMSCB-SO, Aberdeen Proving Ground, MD 21010-5423.**

TABLE 7-5  
SAMPLING PLAN

Lot size                      Quarterly Sample Size

	<u>A</u>	<u>B</u>	<u>C</u>
0 to 25	2	5	100%
26 to 150	4	11	25
151 to 300	6	16	40
301 to 750	9	23	64
750 to 3000	12	30	75
3001 +	15	35	85

**NOTE:** When total annual sample size exceeds lot size, lot will be sampled 100% each year. This 100% sampling may be done in a single quarter or spread out over the 4 quarters, at the discretion of QASAS in charge. If 100% sampling is completed in 1, 2, or 3 quarters, a visual SMI will be conducted on the lot during the remaining quarter(s) of the year. For all other lots, samples should be chosen from those items not sampled since completion of the previous 100% sampling.

(2) Samples selected for quarterly SMI will not be sampled again until all rockets in lot have been sampled. Tagging or marking of sampled rockets may be necessary to ensure proper sample selection.

(3) Description of Operation.

(a) Review previous magazine monitoring results.

1 Evaluate magazine monitoring results to determine appropriate inspection procedures and scope.

2 Magazines with detectable agent contamination should have leaker isolation procedures instituted. If SMI is combined with leaker isolation operation, full sample size must be tested, as a minimum.

(b) Identify M55 rocket lot selected for sampling.

(c) Visually inspect all M441 shipping and firing tubes in the lot for evidence of leakage or degradation of container integrity, to extent possible without rewarehousing.

(d) Identify individual rockets designated for testing.

### CAUTION

M441 shipping and firing tube may develop internal pressure during storage. Potential release of pressure associated with presence of liquid agent may result in expulsion of agent from sampling port when plug is removed. Equal care should be taken when removing either end sampling plug. Situations have been experienced in which agent under pressure sprayed from one end of the firing tube but not the other. Plug removal tool must be fitted with a splash shield.

(e) Prior to air sampling, selected rockets should be rotated so that the nose end sampling plug is in the 12 o'clock position. This plug should be removed prior to removal of the aft end plug. If the rocket cannot be rotated, the nose or aft end plug closest to the 12 o'clock position will be removed first.

(f) If the nose end plug cannot be removed, and no evidence of agent leakage is present, replace the nose cap IAW drawing E90-1-13 and TB CML-73.

(g) If aft end plug cannot be removed, the rocket will be removed from the sample, tagged, and not subjected to future air sampling. The rocket will not be containerized unless other evidence indicates it is leaking. Another rocket will be selected to complete the sample.

(h) In the event damaged sampling port threads are noted, self tapping plugs that provide an equivalent closure and can be removed for future sampling will be used.

(i) Upon removal of sampling plugs from end caps, examine for presence of agent contamination. If contamination is suspected, test with M8 paper.

(j) Perform gross-level agent detection tests to determine if samples require low-level testing. Negative samples will be tested for low-level contamination.

### **\*\*\*NOTE\*\*\***

Gross-level testing is performed to provide immediate identification of gross-level leakers and to identify handling, transportation, and analysis requirements for detector samples IAW DA Pam 385-61. When using low-level methods, which provide immediate results (20 minutes or less) at the site, gross-level testing may be omitted.

(k) Perform air sampling of M55 rocket samples using approved low-level test procedure; e.g., bubbler, ACAMS, MINICAM, DAAMS, HP 5890/Dynatherm, etc.

(l) Upon completion of air sampling, assure rubber air-sampling plug gasket is serviceable and reinstall plug.

### *c. Binary (Projectiles, M20 and M21 Canisters, and Bulk QL).*

Conduct SMI for all components of the binary round IAW paragraph 7-4a (except for structure monitoring requirements). It is not necessary to open outer packs or remove projectile base plate to inspect components within.

### WARNING

DF has a stinging, disagreeable odor, and QL has a strong fishy smell. Immediately evacuate area if either are present.

(1) DF canister (M20) and bulk QL.

(a) Magazine will be monitored for presence of DF and QL and personnel will not enter until negative results are obtained.

(b) Personnel will carry appropriate respiratory gear for use if needed. Canisters will not be handled unless face protection is worn.

(2) Projectile and alcohol canister (M21).

(a) Magazine will be opened for ventilation for 15 minutes prior to entry.

(b) Personnel will carry appropriate respiratory gear for use if needed.

**7-10. Detection Methods.** The following gross-level detection methods may be used to supplement low-level detectors (bubblers, ACAMS, etc.) when detecting or confirming leakers, in addition to methods described in DA Pam 385-61.

a. **Test for G-series vapor using blue band, NSN 6665-00-856-8236, or white band, NSN 6665-00-702-7136, tubes.** Expiration date on detector kits and blue band tubes can be disregarded when used for G-agent detection.

(1) Preparation of indole/sodium pyrophosphate peroxide solution. This is the only solution authorized for use as a reagent with blue band tubes to test M55 GB rockets.

(a) Mix 0.13 grams indole (minimum 99% purity) and 0.24 grams of sodium pyrophosphate peroxide (NSN 6810-00-034-1319) with 8ml distilled water (not all of the indole will dissolve). The solution must be prepared daily and must be protected from direct sunlight. Indole powder should be white to cream or pale yellow; if color has changed significantly, discard and obtain fresh supply. Solution may be prepared by the laboratory.

(b) A volumetric scoop may be used in lieu of weighing indole and sodium pyrophosphate peroxide. The same size scoop should be used for both materials and should conform to any of the dimensions in Table 7-6 in order to provide the desired volume of approximately 0.31ml. Use 2 scoops of sodium pyrophosphate peroxide and 1 scoop of indole.

TABLE 7-6  
Volumetric Scoop Dimensions

Diameter (inches)	Height (inches)
1/4	26/64 (- 1/64)
5/16	1/4 (- 1/64)
3/8	11/64 (- 1/64)
7/16	1/8 (- 1/64)
1/2	3/32 (- 1/64)

(2) Just prior to test, break off both ends of the sampling tube at the score marks. Insert the unbanded end of the sampling tube firmly into the tubing which leads to the air sampling device.



(3) Tubes may be used for more than one sample before adding solution. If a positive result is obtained, every item sampled by that tube must be retested individually. The test will be invalid for any sample tested by a single tube after the total air volume drawn through that tube exceeds 10 liters. Hose clamps may be used to temporarily halt the flow of air through the sampling tubes.

#### **WARNING**

Multiple use of tubes is not authorized when ambient relative humidity exceeds 59%.

(4) Obtain an air sample of 2 - 2 1/2 liters or 60 compressions of the aspirator bulb from the M18A2 kit.

(5) Remove the sampling tube from the tubing and add 1 or 2 drops of solution to the banded end. After 1 minute, place the sampling tube against a white background and observe the resulting color. In cold weather, color development may be slow, taking 5 minutes or more at temperatures below 55°F.

(6) Color of tube should remain unchanged in the absence of agent vapor. A green or blue-green color indicates the presence of G vapor when using indole/sodium pyrophosphate peroxide solution. A yellow color indicates the presence of G vapor when using solution from the green top bottle prepared IAW the directions with the M18A2 detector kit.

#### ***b. Test for H-series agent using blue band tube.***

(1) Sodium hydroxide solution. Prepare an 8.5% solution of sodium hydroxide by dissolving 0.68 grams of sodium hydroxide in 8ml of distilled water. This solution may be prepared by the laboratory.

(2) Obtain air sample IAW 7-10a(2) through 7-10a(4).

(3) Remove the sampling tube from the tubing. Wait 2 minutes, then add 1 or 2 drops of solution to the banded end. In cold weather, color development may be slow.

(4) Color of tube should remain unchanged in the absence of agent vapor. A purple/blue color indicates the presence of H vapor when using sodium hydroxide solution or solution from the blue top bottle IAW directions of the M18A2 kit.

#### ***c. Test for VX vapor using Draeger Hydrazine tube, NSN 6665-00-022-1357 (for M55 VX rockets only).***

(1) A single tube may be used as many as three times if no color change has occurred and temperature is above 20°F. If a positive result is obtained, each item sampled with that tube must be retested individually.

(2) Just prior to test, break off both ends of the sampling tube. Insert the sampling tube firmly into 5/16" ID plastic tubing which is attached to tubing from the sampling device. The arrow on the sampling tube must point in the direction of air flow. Tubes should not be used if they have been open for more than 24 hours.

(3) Obtain an air sample at a flow rate of 1 to 2 liters per minute IAW the following :

above 50°F.	3 minutes
20-50°F.	10 minutes
below 20°F.	20 minutes

(4) Observe the tube for color change immediately after obtaining sample.

(5) A change from yellow to deep blue over any portion of the tube indicates the presence of VX vapor.

**d. Test for Lewisite vapor using single yellow band or double yellow band tubes.**

- (1) Sodium hydroxide solution may be prepared IAW paragraph 7-10b(1).
- (2) Obtain an air sample IAW 7-10a(2) through 7-10a(4).

(3) Remove the sampling tube from the tubing and add 1 or 2 drops of solution to the banded end. Place the sampling tube against a white background and observe the resulting color. In cold weather, color development may be slow.

(4) Color of tube should remain unchanged in the absence of Lewisite vapor. Test solution will be sodium hydroxide solution or solution from the blue top bottle IAW directions of the M18A2 detector kit. A blue-green/yellow-green color indicates the presence of Lewisite vapor using the single yellow band tube. A red-brown color indicates the presence of Lewisite vapor when using the double yellow band tube.

**e. Test for nerve agent vapor using enzyme detector ticket.**

(1) Blue color on the square end of the ticket indicates absence of nerve agent vapor. If the square end of the ticket is colorless to orange, the presence of nerve agent vapor is indicated.

(2) If sample is obtained using an automated sample pump, obtain a sample volume of 2 - 2 1/2 liters. All other procedures are as described by TM 3-6665-254-12.

**f. Test for liquid chemical agent using M8 paper.**

(1) Color of M8 paper indicates the presence and type of agent. Test results should be considered suspect if the liquid to be tested is deeply colored, has a color similar to the color response expected, or if the area has been recently decontaminated.

(2) To test for the presence of liquid agent, detach a sheet of paper from the booklet and touch or blot the suspect liquid.

**WARNING**

If liquid agent is believed to be present within an encrustation, a response will be obtained only if agent exists as a free liquid. If the agent has been absorbed into the media or has solidified, response to the M8 paper will be negative even though a percutaneous hazard may exist.

g. In addition to the above, gross-level detection using the CAM and M8A1 may be accomplished IAW the applicable TM.

**CHAPTER 8**  
**BASIC LOAD INSPECTION (BLI)**  
**AND TECHNICAL SUPPORT ASSISTANCE**

**8-1. General.**

a. The following are to receive BLI and technical support assistance from QASAS. This will include technical assistance visits and inspection of operational load, training load, mission load and contingency stocks.

- (1) Active Army.
- (2) Reserve Component units and activities.
- (3) National Guard units.
- (4) Security forces at installations where AR 50-6 applies.
- (5) Activities and individuals located outside the real property boundaries of coordinating and/or supporting installations.

b. Ammunition surveillance support (BLI and technical support) in CONUS will be implemented by scheduling support on a periodic basis as established in a letter of agreement between the command providing QASAS support and the recipient activity. Provisions of AR 5-9 also apply.

(1) Theater regulations will govern frequency of support OCONUS, but in no case will the visit occur less frequently than 12-15 months. This inspection excludes war reserve stocks in storage for customer issue.

(2) Training ammunition drawn for immediate use from ASPs is excluded.

c. Depot surveillance records (DSR) are not required for the above stocks of ammunition (see para 11-2a(1)).

**8-2. Inspection requirements.**

a. FORSCOM or TRADOC installations (post, camp, station) with assigned QASAS will perform inspection of stored conventional and guided missile basic load and training munitions under unit control no less frequently than 12-15 months. Appropriate SBs and TMs will be used for the inspection.

b. The BLI will be conducted by a QASAS, who may be supplemented and assisted by a military MOS 55B (SSG/SFC) and/or qualified wage grade or local national personnel. In addition, the unit inspected normally furnishes support personnel for efficient handling, unpacking, correction of minor deficiencies, repacking, and storage of munitions as required.

c. The local organization responsible for maintaining subject materiel may perform operator/organizational inspection/basic maintenance functions as authorized in the maintenance allocation chart of appropriate technical manuals. Any problems encountered that cannot be resolved locally will be brought to the immediate attention of the supporting QASAS. The results of such operations will be documented for review by the QASAS during periodic technical support visits.

d. BLI will be conducted on all uploaded munitions and all open (unsealed) containers. Munitions sealed in original package shall be opened and inspected to the extent necessary to verify serviceability based on such parameters as storage conditions, appearance of outer pack, lot size, or length of time in basic load.

(1) Barrier material packaged items will be treated according to paragraph 2-3c(4). Sampling criteria in paragraph 2-3 and table 2-2 do not apply.

(2) Ammunition lots must meet minimum serviceability standards for the specific type munition for retention in the basic load.

(3) The appropriate models and quantities of ammunition required to support the unit's applicable weapon systems will be in the UBL.

#### **8-3. Technical assistance visit.**

QASAS will conduct a review in the following areas in conjunction with BLI:

a. Explosive safety.

b. Ammunition storage.

c. Unit procedures for transportation of ammunition, upload plans, disposition of excess ammunition including training ammunition, and investigating and reporting malfunctions (see para 10-11).

d. Property books and ammunition records and reports.

e. Check lots against suspension/restriction files (TB 9-1300-385) and AINs. Check that units have an adequate suspension system.

#### **8-4. Reporting.**

A memorandum format report will be forwarded to the unit commander within 30 days using local directives at theater or command level for distribution guidance with a copy sent to the appropriate materiel management activity. The memorandum will specify discrepancies noted and include recommended corrective action. For inspection of ARNG units, one copy will be sent to Army National Guard Reserve Component, ATTN: NGB-ARL-E, 111 South George Mason Drive, Arlington, VA 22204-1382. Response will be reviewed by the QASAS to evaluate corrective actions taken.

#### **8-5. Establishment of local directives.**

Supplemental guidance must be developed at local, theater, or command level to cover policies, procedures, and responsibilities for required basic load inspection.

**CHAPTER 9**  
**CLASS V MATERIEL SUPPLIED TO NON-SMCA CUSTOMERS**

**9-1. General.**

- a. This chapter pertains to all Class V Army owned stocks, supplied to non-SMCA customers.
- b. Terms and definitions.

- (1) SMCA customers -- Army, Navy, Air Force, and Marine Corps.

- (2) Non-SMCA customers - Federal, State and Local departments, agencies, or institutions; commercial corporations; U.S. Coast Guard; director of civilian marksmanship; rod and gun clubs; and veteran organizations.

**9-2. Procedures.**

- a. Installations are required to obtain functional (performance) clearance for ammunition and explosive components including both shipments and in storage transfer of accountability. Shipment or transfer of accountability of caliber .22, shotgun shells and blank small arms ammunition does not require a functional clearance. Once a lot and/or item has been declared free of waiver and functionally cleared for shipment to non-SMCA customers, it need not be cleared for subsequent shipments.

- b. Materiel supplied to customers will comply with the following:

- (1) Functional clearance by IOC, Surveillance Office.

- (2) Materiel must be functionally serviceable and have been accepted without waiver. NOTE: Waivered materiel may be cleared on a case-by-case basis.

- c. Functional clearance will be obtained from IOC, Surveillance Office, by e-mail, message, correspondence, or telephone. The following information is required for clearance of candidate materiel:

- (1) Customer.
  - (2) Nomenclature, NSN, and DODIC.
  - (3) MRO number.
  - (4) Lot/SN and quantity to be shipped.
  - (5) Date of manufacture and latest test data.
  - (6) Functional deviations or waivers from local records.
  - (7) Restrictions or suspensions.
  - (8) Latest inspection results.

(c) Materiel generated from demilitarization to be returned to stock or offered for sale (e.g., propellant, explosives, etc.) will be inspected by a QASAS utilizing the same sampling plan as above. Functional classification and quality standards of components and materiel generated from demilitarization will be as specified by the appropriate DMWR or letter of instruction (LOI). Where classification and quality standards are not stated, data will be requested from the appropriate commodity command.

(d) All reclaimed propellant must be certified as stable for continued storage prior to re-use, return to stock, or offering for sale through Defense Reutilization and Marketing Office (DRMO) channels. Specific guidance and instructions for determining the chemical stability of propellant is contained in SB 742-1300-94-895.

(6) Certification of reclaimed scrap.

(a) Scrap will be certified by the generating activity (ammunition operations organization) as being properly processed, totally inert, and free of hazardous chemicals/explosives. Mutilation will be accomplished according to existing requirements (see DOD 4160.21-M-1, AMC-R 385-100, TM 9-1300-206, DA PAM 385-64 and demilitarization code in the AMDF) prior to turn-in to the DRMO.

(b) A sample of the scrap certified in (a) above will be selected and inspected by the surveillance organization according to paragraph 10-6c(5)(b). When the inspection results determine the processed scrap to be free of hazardous material, a QASAS will verify that the certification provided by the operations organization is valid. Both the certification and verification must be documented and maintained per current regulations.

(7) *Accountability.*

(a) Closed loop accountability must be maintained per local regulations at demolition/burning grounds and at temporary storage sites.

(b) A certification record of demilitarized items will be prepared on a daily basis.

(8) Surveillance reporting of demilitarization operations will be performed daily according to para 10-9.

#### **10-7. Protective Clothing.**

(1) Suitable personal protective clothing, equipment, and devices will be used to protect against hazards inherent in specific operations, according to AMC-R 385-100, TM 9-1300-206, DA PAM 385-64 or other appropriate publications.

(2) When conductive clothing or equipment is required in an operation, the conductive reliability of such equipment must be checked using APE 1953, conductive floor and conductive shoe tester, or other approved equipment. Utilization of APE 1953 must be according to applicable operator and maintenance manuals and must conform to local safety requirements. Daily records of results must be maintained.

#### **10-8. Handling of treated packing materiel.**

(1) Pentachlorophenol (PENTA)-treated packing material. Personnel handling PENTA-treated packing material must wear protective clothing and follow hygiene requirements as stated in applicable DMWR, Surgeon General directives, or U.S. Army Environmental Hygiene Agency Technical Guide Number 146, entitled "Pentachlorophenol treated material handling and disposal".

(2) Zinc Napthenate/Copper Napthenate-treated material. Personnel handling such material must observe precautions according to applicable DMWR or Surgeon General directives.

#### **10-9. Documentation.**

a. An internal reporting medium for all visits by QASAS personnel to operations will be established. Refer to Chapter 4 for further guidance.

b. Reports of deficiencies/operational improvements forwarded to responsible activities, and the resolution or corrective actions resulting from such reports, will be maintained. Follow-up will be made to ensure deficiencies are corrected.

#### **10-10. Ammunition Information Notices (AIN)/Missile Information Notices (MIN).**

a. *AINs are used to--*

- (1) Disseminate technical information for IOC/SMCA-managed items.
- (2) Provide information relating to the conduct of the surveillance program.
- (3) Dispense precautions pertaining to specific munitions.

b. *MINs are used to--*

- (1) Disseminate technical information for AMCOM managed items.
- (2) Provide surveillance information regarding guided missiles and large rockets.

c. Surveillance organizations will implement guidance.

#### **10-11. Major Training Area Operations.**

a. *QASAS responsibilities.*

(1) QASAS assigned to live firing training areas are responsible for providing technical assistance and support on ammunition quality and explosive safety matters to locally assigned personnel and to troops training at the facility. This includes, but is not limited to, range support during training exercises and investigating and reporting malfunctions involving ammunition in accordance with AR 75-1.



(2) QASAS should be available to assist range safety officers to assure that units are properly briefed prior to commencement of training exercises. This will include as a minimum, safety in handling and transportation, protection of ammunition from the elements, malfunction reporting requirements and turn-in procedures for unused ammunition and residue (packing material, fired cartridge cases, etc.). In addition, the need to inform the QASAS of any suspect or otherwise defective ammunition that might affect user safety or mission accomplishment should also be emphasized. Examples of defective ammunition are rounds that fail to chamber, assemble or disassemble, deteriorated propellant bags, excessive misfires, short ranges, etc.

(3) QASAS must be thoroughly familiar with the requirements of AR 75-1, AR 385-60, AR 385-62, AR 385-63, AR 385-64, AR 740-1, DA PAM 385-64, TM 9-1300-206, FM 9-6, FM 9-38, local procedures, and make extensive efforts to ensure they are met.

(4) QASAS will assure that suspended or restricted munitions and ammunition lots cleared or not cleared for overhead fire are identified and appropriate action taken.

(5) Actions required and reporting procedures for malfunctions involving ammunition will be as specified in AR 75-1 and supplements thereto. Local range procedures must assure that the provisions of this regulation are met.

*b. Malfunction investigations.* QASAS should be available to prepare or provide assistance in preparation of reports required by AR 75-1 and local procedures. Typical examples of steps that may be taken in the event of a malfunction are listed below. It must be understood that the following is not intended to be an all-inclusive list.

(1) Obtain general information concerning the incident at the time the initial report is made. Determine if incident is reportable IAW AR 75-1 criteria.

(2) Inform reporting individual that ammunition and weapons involved in the incident must be left in place and not disturbed until an investigation has been conducted.

(3) Conduct visual inspection of malfunction site in conjunction with AMC logistics assistance representative (ACALA for weapons and AMCOM for missiles), ammunition officer and/or EOD, if needed.

(4) Visually inspect unpackaged ammunition as well as any residue from the expended ammunition. Particular attention will be given to the condition of ammunition prepared for firing, i.e., tampering or unauthorized firing configurations or procedures, exposure to elements, and length of time unpackaged.

(5) Every effort will be made to interview all personnel involved in the malfunction and other personnel who witnessed the incident. Personnel will be thoroughly questioned on events, procedures, actions, etc., that took place before, during, and after the malfunction.

(6) Ammunition will be locally suspended from use when it has been determined that the ammunition is the possible cause of a malfunction.

(7) Preliminary malfunction feeder reports may be sent by e-mail. Send reports on IOC managed material to: [amsio-gas@ria-emh2.army.mil](mailto:amsio-gas@ria-emh2.army.mil) and for AMCOM managed material to: [AMSAM-MMC-LS-M@redstone.army.mil](mailto:AMSAM-MMC-LS-M@redstone.army.mil).

*c. Range area operations*

(1) QASAS should conduct area inspections periodically (daily when possible) of the ranges to assure that ammunition is properly handled, stored, and transported. Particular attention will be made to safety or operational requirements such as explosive limits, rough handling of ammunition, excessive amounts of ammunition packages opened, etc. When discrepancies are noted, on-the-spot corrections will be made. Discrepancies will be recorded and reported according to locally established procedures.

(2) When visiting firing ranges the QASAS will observe firing and, if possible, consult with troops to determine if problems were encountered with the ammunition during training. Problems that are brought to the attention of the QASAS must be investigated and reported through command channels to the appropriate commodity command.

**10-12. Army prepositioning (PREPO) ships and Marine Corps (MC) maritime prepositioning ships (MPS).**

a. Ammunition supplied for PREPO and MPS (Afloat Prepositioned Force - APF) is intended for long term storage aboard ship and for rapid deployment in a combat situation. Surveillance functions, including sample selection and inspection, removal and replacement of suspended stocks, minor preservation and packaging (P&P), stock rotation and inventory actions, are normally accomplished during periodic maintenance/inspection cycles for the ships. The Surveillance Program for PREPO stocks is designed to adequately describe current condition of ammunition and provide a basis for decisions concerning stock rotation and storage of ammunition on board PREPO ships.

*b. Lot selection for APF stocks.*

(m) The latest entry should be compared with previous inspection results given on the DSR for possible findings that may require additional action. The chief of surveillance or first line supervisor should periodically monitor these remarks to assure that they are accurate and complete.

(4) Depot surveillance cards for missile materiel will normally be prepared for each lot or serial number item.

(5) DA Form 3022-R will be reproduced locally as required on 8- by 10-inch card stock (image size 7- by 9- 1/2-inch) to permit folding the card in the middle to an 8- by 5-inch size for filing. A copy of DA Form 3022-R is located at figures 11-1 and 11-2 for local reproduction purposes. Installations that have automated DSR cards are required to have a capability for printing a DSR card.

(6) Exceptions from the requirement to prepare and maintain DSR cards:

(a) CCFTP test samples held at the test site.

(b) Army ammunition plants need not prepare DSR cards for new materiel in the industrial account, provided no significant events necessitating a DSR entry (such as suspensions, restrictions, releases, special inspections or conditions code changes) occur. Processed industrial stocks which have not yet "been accepted" by the government will have DSR's initiated as specified by appropriate regulatory requirements. For materiel identified as "work in process," logbooks containing pertinent information may be used in lieu of DSR's. If lots are shipped prior to initiation of DSR's, shipping documents will be annotated with a statement that DSR cards have not been initiated; reference this paragraph.

(c) Basic load munitions, see para 8-1c.

(7) DA Form 3022-R (fig 11-1) may be reproduced locally, as required, on 8-1/2 by 11-inch paper for use as an ammunition surveillance inspection worksheet (i.e., used to temporarily record inspection data for transposition to the formal DSR card).

*b. Ammunition suspension record.* Ammunition suspected of being unsafe or containing a critical defect will be suspended to prohibit its issue and use. This action is based on malfunction or accident reports, function test reports, and inspection reports. An investigation is conducted to ascertain the quality of the lot or item and to determine disposition of quantities involved. Based on the results of the investigation, disposition instructions will be issued to release, rework, or demilitarize the ammunition under consideration.

(1) Army suspension. Worldwide ammunition suspension, restriction, and release notices are disseminated by IOC and AMCOM

teletype or electronic mail supplements to TB 9-1300-385 which is published quarterly by IOC surveillance office.

(2) Other service suspensions are covered in TO 11A-1-1 (Air Force) and TWO 24-AA-ORD-010 (Navy/USMC).

(3) In accordance with SMCA guidelines, a temporary suspension issued by the Army, Navy/USMC or Air Force applies to all stocks regardless of owner. If a service does not agree with the temporary suspension it will release its stocks; that release applies only to that service's stocks. A permanent suspension issued by the Army, Navy/USMC or Air Force applies only to stocks of the service issuing the permanent suspension. Permanent suspensions issued by any service will apply to stocks in the demil accounts unless IOC surveillance non-concurs in the suspension action

(4) Suspension control. Control of suspended stocks is a responsibility of the ammunition surveillance organization and involves maintaining the installation's master suspension records. The ammunition surveillance organization is also responsible for assuring that suspended items that are restricted from handling or movement are not moved, handled, or shipped except as specifically authorized by higher headquarters. Munitions locally issued for training must be monitored for suspensions. Suspension notices received during non-duty hours at installations where non-duty hour training exercises are conducted must be checked against munitions in use for such exercises.

(a) Suspended stocks in storage must be appropriately identified using DD Form 1575 (Suspended Tag-Materiel) or DD Form 1575-1 (Suspended Label-Materiel) to preclude unauthorized handling or issue.

(b) In addition to applicable information as requested on the form, the tag will be annotated with one of the following remarks as applicable:

(1) "Suspended-- Issue Prohibited."

(2) "Suspended from Issue, Movement, and Use."

(3) "Suspended Except for Emergency Combat Use."

(c) Lettering will be the largest possible that is compatible with the forms. OCONUS commands may fabricate and use multilingual versions of forms as needed.

(d) Forms will be securely attached to the affected lot's stack in storage and to the magazine data card to preclude loss during magazine storage operations, etc. Presence of suspension tags will be verified during each magazine inspection.

c. *Ammunition gage record card.* DA Form 3023 (Gage Record) is received with each gage and includes pertinent gage information. The card will be maintained in an up-to-date manner with the record of

actual gage usage recorded on the reverse side. The gage usage record is used to determine when gages should be submitted for a dimensional check. Gage record cards are returned with gages requiring use-test checks.

d. *DD Form 1650 (Ammunition Data Card)*. When ammunition is renovated, inspected 100 percent for critical defects, modified or regrouped, new or revised data cards will be prepared by the appropriate ammunition operations organization and approved by the QASAS in charge. The requirement for new ammunition data cards is outlined in MIL-STD-1168 and specific instructions from the commodity command. Revised data cards will be sent to the central repository of the owning service. **For Army send to: HQ, IOC, ATTN: AMSIO-IBQ, Rock Island, IL 61299; for other services see paragraphs 11-4a and b.**

e. *Equipment logbooks and maintenance logs*. The results of inspection and maintenance of missiles and associated test and handling equipment will be maintained on applicable forms according to DA Pam 738-750.

f. *Storage monitoring record*. Results of the SMI monitoring and action taken to correct any discrepancies will be posted to the DSR card.

g. *DA Form 4508 (Ammunition Transfer Record)*. DA Form 4508 will be used to accomplish local condition code, NSN, nomenclature, and lot or SN changes and will be processed through and concurred in by the ammunition surveillance organization. QASAS must review and approve any reclassification action.

h. *Materiel condition tags and labels*.

(1) All materiel destined for Navy or Marine Corps use will have materiel condition tags or labels affixed prior to shipment.

(2) Tags or labels will be used to identify suspended stocks, as required by paragraph 11-2b(4)(a) above, and to identify containerized chemical surety munitions.

i. *Lot Cluster logs*

(1) A log will be maintained for each cluster which identifies all lots belonging to the cluster.

(a) Figure 11-3 contains an example format and describes minimum data elements required for creating a local log. A master log will be maintained to identify all lot clusters. Figure 11-4 contains an example format and guidance on development of the master log. Local reproduction of Figures 11-3 and 11-4 is authorized.

(b) The surveillance test lot (STL) reporting system of the Standard Depot System (SDS) or a PC-based data base system using data elements from Figures 11-3 and 11-4 meet the requirements for lot cluster logs.

### 11-3. Reports.

a. *DA Form 2415 (Ammunition Condition Report)*. The ACR is used to report failures, discrepancies, and other conditions of ammunition materiel. The instructions for use, completion, and distribution of DA Form 2415 are outlined in DA Pam 738-750.

b. *SF 368 (Quality Deficiency Report)*. SF 368 is the authorized means for users of Army materiel to report--

- (1) Equipment faults in design, operations, and manufacturing.
- (2) Equipment improvement recommendation to suggest improvements in Army materiel.

(3) Unsatisfactory new equipment received that is a direct result of below standard quality or workmanship. Instructions on completion are contained in AR 702-7 and DA Pam 738-750.

c. *SF 364 (Report of Discrepancy (ROD))*. Installations receiving shipments with damage due to improper unitization, packaging, preservation; and with incorrect marking, quantity discrepancies or documentation discrepancies will report the discrepancies according to AR 735-11-2. SF 364 will not be used for reporting transportation discrepancies (see SF 361 below), except for materiel sent parcel post. The QA organization will normally report packaging discrepancies while the operations organization reports discrepancies in the item(s) shipped.

d. *SF 361 (Transportation Discrepancy Report (DISREP))*. Shipments received at an installation that are astray, lost, or damaged; improperly blocked and braced; incompatible; handled improperly by carrier; tender or use of carrier's inadequate equipment or facilities; misdirected shipments; improper documents; or shipped in violation of military regulation will be reported on SF 361 according to AR 55-38.

e. *Ammunition inspection and lot number report*. This report will be prepared according to AR 700-22 (WARS) for those commodities under the control of IOC and AR 710-9 for AMCOM-managed commodities. The preparation of required input data will be accomplished by or under the supervision of a QASAS.

f. The Small Arms Ammunition Trace Test Record will be used for recording and reporting the trace test results according to SB 742-1305-94-20.

g. Reports of explosions, chemical agent releases, and serious accidents will be reported in accordance with AR 385-40 and applicable supplements.

*h. DD Form 250 (Materiel Inspection and Receiving Report).*

(1) The instructions and procedures for the preparation and distribution of DD Form 250, initiated in connection with shipment of supplies from vendor's plants (new procurement), are specified in DOD acquisition regulations and AR 715-29. The requirement for inspection and/or acceptance of materiel (new procurement) received at depots from vendors as indicated on DD Form 250 is applicable to--

(a) Materiel inspected at origin and requiring acceptance at destination.

(b) Materiel requiring inspection and acceptance at destination.

(2) Installations receiving materiel from procurement for stock will process the DD Form 250 in accordance with applicable regulation (1) above.

(3) The SF 368 will be used to report defective products received at army installations for acceptance by the Government. In block 22 of SF 368, reference that this is a "Memorandum of Rejection" should be included.

**11-4. Distribution of DSR and Ammunition Data Cards (ADC) to Army activities.**

a. DSRs and ADCs are critically important supply documents for activities such as FORSCOM, TRADOC and ARNG Posts, Camps, Stations and Ammunition Supply Point, both CONUS and OCONUS, which issue ammunition directly to users. Lack of DSR and ADC may delay ammunition issues and burden these activities with the requirement to perform unnecessary inspections. Shipping installations will make every effort to ensure DSR and ADC are received in a timely manner. DSRs and ADCs may be transmitted electronically (automated, e-mail or fax) in lieu of mailing. DSRs and ADCs for each lot, SN, or group of ammunition, and ammunition components scheduled for shipment must be furnished.

b. Ammunition Data Cards for AMCOM managed items and for all shipments to OCONUS destinations will also be forwarded to the appropriate central repository listed below. Data Cards for a lot need to be sent only once to each central repository. Subsequent shipments of the same lot do not require additional mailings of the same data cards to the same repository.

(1) England and Germany -- Commander, 200th Theater Army Materiel Management Center, ATTN: AERLA-MMC-MD, UNIT 23203, APO AE 09263, e-mail: [hilla%po4.hq@taacom.kaiserslautern.army.mil](mailto:hilla%po4.hq@taacom.kaiserslautern.army.mil) or fax DSN: 484-8975.

(2) Italy - Commander, Southern European Task Force, ATTN: AESE-GLO-Q, Unit 31401 Box 1, APO AE 09630, e-mail: [aese-glo5@email.vicenze.army.mil](mailto:aese-glo5@email.vicenze.army.mil), or fax DSN: 634-7742.

(3) Alaska -- Commander, U.S. Army Garrison, Alaska, ATTN: APVR-DLCQ, 977 Davis Highway, Fort Richardson, AK 99505-5700, e-mail: [apvrdlc2@richardson-emh2.army.mil](mailto:apvrdlc2@richardson-emh2.army.mil) or fax DSN: 317-384-3122.

(4) Hawaii -- Commander, U.S. Army Garrison - Hawaii, ATTN: APVG-GLS-MU, Schofield Barracks, HI 96857-5000, e-mail: [scottg@schofield-emh1.army.mil](mailto:scottg@schofield-emh1.army.mil), fax DSN: 668-3197.

(5) Japan -- Commander, 83rd Ordnance Battalion, ATTN: APAJ-GH-AM-S, FPO AP 96310-5432, e-mail: [apaj-gh-am-s@zama-emh1.army.mil](mailto:apaj-gh-am-s@zama-emh1.army.mil), fax DSN: 256-2415.

(6) Korea -- Commander, 6<sup>th</sup> Support Center (Materiel Management), ATTN: EANC-TIM-GQA, Unit 15016, APO AP 96218-0172, e-mail: [eanc-tim-gga@emh5](mailto:eanc-tim-gga@emh5). Korea.army.mil or fax DSN: 768-8261.

(7) War Reserve Stockpile - Thailand - Commander, USARPAC, ATTN: APLG-MUS, Ft. Shafter, HI 96858-5100, e-mail: [millem@shafter-emh2.army.mil](mailto:millem@shafter-emh2.army.mil) or fax DSN: 438-7119.

c. Ammunition Data Cards for IOC managed can be retrieved from Automated Lot Record Malfunction (ALRAM) System. If ADC is not available through ALRAM the Consignee will contact the shipping organization and request the ADC. The shipper will also forward a copy of requested ADC to Commander, U.S. Army Industrial Operations Command (IOC), ATTN: AMSIO-QAS, Rock Island, IL 61299-6000. Appendix B contains ALRAM procedures.

#### **11-5. Distribution of DSR and ammunition data cards to other than Army activities.**

For all U.S. Navy and Marine Corps shipments, one copy of the ADC and DSR card for each lot or serial numbered item of ammunition will be forwarded to the consignee utilizing DA Form 200. Distribution for U.S. Air Force shipments will be according to T.O. 11-A-1-10 which specifies that surveillance records will be both mailed and sent with the ammunition shipment. Additional distribution will be made as follows:

a. For materiel furnished the U.S. Air Force, send one copy of ammunition data card and DSR card to Commander, OO-ALC/LIWGE, 6034 Dogwood Avenue, Hill Air Force Base, UT 84056, e-mail: [harrisb@gateway.hill.af.mil](mailto:harrisb@gateway.hill.af.mil), or fax DSN: 777-2186.

b. For NAVSEA, NAVAIR, and USMC shipments, forward the ADC and DSR card to the consignee and one copy of each to Commanding Officer, Naval Surface Weapons Support Center - Crane Division, Code 402, 300 HWY 361, Crane, IN 47522-5090, e-mail: [burns\\_chuck@crane.navy.mil](mailto:burns_chuck@crane.navy.mil) or fax DSN: 482-1883.

c. Data cards for specific lots need to be sent only once to each service central repository. Subsequent shipments of the same lot do not require report submissions of the same data card to the same repository.



## APPENDIX D

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### SECTION II. INSTRUCTIONS FOR SPECIFIC ITEMS

#### D-1. Ammunition Identification Codes (AIC) or other outdated markings.

a. Ammunition lots marked with the AIC in lieu of NSN and DODIC (and otherwise acceptable) will be considered suitable for issue for training or interdepot shipment without remarking of the outer pack or palletized load. Annotation of the NSN and DODIC is required only on the shipping documents, ammunition data cards, and depot surveillance record cards.

b. Ammunition lots marked with the AIC in lieu of the NSN and DODIC and being shipped for potential inclusion in unit basic load or prepositioned war reserve stocks will be treated as follows:

(1) Unpalletized boxes and containers. The NSN/DODIC will be applied to the side of each exterior package prior to unitization for shipment.

(2) Palletized units. Properly palletized units will have the NSN/DODIC applied to the side or top of accessible boxes and containers prior to shipment.

(3) Palletized separate loading projectiles. The NSN/DODIC will be applied to the top of each pallet and DODIC applied to each projectile prior to shipment.

(4) The application of NSN/DODIC on two lines is permitted when required by space limitations.

(5) Ammunition data cards, DSRs and accountable records will be marked with both NSN/DODIC and AIC.

c. For information pertaining to the correct NSN/DODIC for a lot marked only with an AIC, contact the Commander, IOC, ATIN: AMSIO-QAS, Rock Island, IL 61299-6000.

d. Incorrect DOT shipping names will normally be corrected on accessible exterior packages prior to shipment. When it can be determined by the shipper that the marking was correct at some previous time, the materiel need not be remarked. Shipping documents will be annotated with the correct DOT shipping name.

e. Weapon model designations on boxes and containers need not be corrected to comply with current drawings.

f. Items containing dual nomenclature markings within a lot (e.g., "cartridge" on boxes and fiber containers and "shell" on the round) are acceptable.

g. Current markings will be applied whenever items or packaging are marked for other reasons.

#### **D-2. Ammunition manufactured for special purposes.**

a. Certain lots of conventional ammunition were manufactured for special purposes: i.e., proving ground tests, engineering tests, etc., these lots were formerly identified by use of "PG", "SR", "SP", "A", "E", "P" lot interfix and/or word "PILOT" in the lot number. Special purpose ammunition of recent manufacture with the 13-digit lot number, as directed by MIL-STD-1168, is identified by the letters "S", "E", "A", or "P" in position number 10 (position 8 for propellant lots).

b. Ammunition manufactured for special purposes generally is not intended for actual firing as service or training ammunition. Such issues must be specifically authorized by IOC.

c. Non-functioning ammunition items (dummy, inert, drill, etc.) do not require any special authorization for troop issue. Generally, identification of this materiel as a special lot implies manufacture using standard service round technical data package with "special lot" identifying the inert nature of the material.

d. To prevent issue of special purpose ammunition or components for unauthorized use by using units, the following will be accomplished:

(1) Lots other than non-functioning that are in field service, depot renovation, or similar accounts, and that have not been specifically authorized for troop use, will be reported by memorandum to HQ, IOC, ATTN: AMSIO-QAS. Report will provide NSN, nomenclature, lot number, quantity, and account. Copies of the ammunition data cards and DSR cards should be included. Authorization for troop issue shall be based upon verification that production complied with the technical data package requirements applicable to standard lots. Response from IOC must be annotated on the DSR card. Receipts of special purpose lots will be reported unless the DSR card indicates authorization was previously obtained. Serviceable lots will be assigned CC-D pending response from IOC.

(2) Reporting is not required for special purpose lots identified by non-standard NSN or maintained in supply accounts which preclude issue to using units. Examples are demilitarization, proving ground (TECOM), and research and development accounts.

e. Ammunition manufactured for calibration and reference purposes is assigned a 13-digit lot number with letter "C" or "R" in position 10 (position 8 for propellant lots). Reporting procedures for these lots are the same as for other special purpose lots except that reports will be submitted to HQ, IOC, ATTN: AMSIO-QAO. The response from IOC must be annotated on the DSR card.

### **D-3. Ammunition, 25-mm.**

The following requirements for 25-mm cartridges M791 (APDS-T), M792 (HEI-T), and M793 (TP-T) are in addition to procedures contained in Table 2-3.

a. *Free hinging.* Linked ammunition shall hinge and fold over without binding, kinking, separating or any interference. Each belt shall be laid out full length with open side of links up. One end shall be drawn over remainder of belt until belt is completely reversed (open side of links down). One end of reversed belt shall then be drawn over remainder of belt until belt is returned to original (open side of links up) position. Belt must hinge freely throughout this process.

b. Air tightness testing is not required at this time.

c. Drawing 12013695 for linked ammunition requires specific inspections to be performed to assure serviceability. The sample sizes for these inspections will be according to paragraph 2-6 and all noted defects are classified as major:

(1) Inspect the height of cartridge from base of cartridge to forward tab (inspection method: vernier calipers or gage).

(2) Inspect the maximum height of cartridge from bottom of cartridge to top of link (inspection method: vernier calipers or gage).

(3) Inspect to assure dimple is engaged in cartridge case groove in two (2) places (inspection method: visual).

d. A standard gage has not been adopted to measure above characteristics. However, IOC has approved and made available engineering drawings on an aperture card from which a gage may be locally fabricated. Drawing should be requested through Commander, U. S. Army Industrial Operations Command, ATTN: AMSIO-QAS, Rock Island, IL 61299-6000. Drawing number assigned is XM283910087.

#### **D-4. Ammunition, 40-mm.**

Cartridges that are assembled into linked belts will not be removed from their links for inspection or gaging purposes. Cartridges that appear to be damaged to the extent they might not chamber in the weapon should be reported on ACR to AMSIO-SMA according to DA Pam 738-750.

#### **D-5. Ammunition, separate loading.**

a. To be suitable for OCONUS shipment and storage as prepositioned war reserve materiel (PPWR), separate loading projectiles, propelling charges, and their pallets should meet the following criteria for deteriorative type defects:

(1) Projectiles -- should be in such a condition that P&P would not be necessary for at least 3 years. Any rust should be removable by wiping. Surface and markings must not exhibit significant damage after wiping. Bare patches caused by rubbing of projectiles against pallet top or bottom are acceptable providing any rust present in these areas is not expected to reach the major stage within 3 years.

(2) Separate loading propelling charge containers -- for material in storage, containers should be considered serviceable if --

(a) Sample passes air test, regardless of visual condition of lid gasket, except torn or cracked gaskets on samples must be replaced.

(b) Markings are legible and are expected to remain legible for at least 3 years.

(c) Rust has not progressed to the extent that container integrity is threatened and is not expected to progress to the major defect stage (see para 2-7c(2)) within the next 3 years. All defects noted will be annotated on the DSR card.

(3) Steel strapping used to reinforce pallet bottoms may exhibit any degree of rust and still be acceptable. Strapping used to hold the pallet together may exhibit any degree of surface rust that does not affect its breaking strength. Strapping must also be sufficiently tight to maintain pallet integrity during shipment and handling.

b. Torque testing assembled lifting plugs is required only in conjunction with renovation or manufacturing of projectiles. Such

(a) NSN/DODIC.

(b) Nomenclature.

(c) Lot Number.

(d) Installed date.

(e) Removed date.

(f) Aircraft type/serial number.

(2) If an item is selected/required for the test program, ship the item(s) to Commanding Officer, Naval Surface Warfare Center, Indian Head Division, ATTN: CODE 5240A, Building 1557, Indian Head, MD 20640-5035. Documents/packages for shipment should be marked: "ARMY CAD/PAD SURVEILLANCE PROGRAM."

g. Army stockpile test program for CADs or PADs in storage. IOC will furnish a nomination memorandum to each storage location from which test samples are desired. The sample size required for test will be furnished with the request for samples. Only the specific quantity requested for each lot will be shipped.

(1) Each candidate lot from which samples have been selected for testing will be retained in the appropriate CC as determined by the local surveillance organization (QASAS). Candidate lot test samples at the installation will be placed in CC-D and obligated for shipment.

(2) The MRO for shipment of test samples to NSWC, IH, will be issued by ASIO-SMA-R except for the European Theater in which the MRO will be issued by the 200th Theater Army Materiel Management Center (TAMMC).

(3) One end or side of the shipping container will be painted white. Shipping documents and containers will be annotated "ARMY CAD/PAD SURVEILLANCE PROGRAM".

(4) Random sampling for selection of samples will be used where possible.

h. Inspection requirements. The owning service establishes appropriate inspection, quality assurance standards, and serviceability requirements. The appropriate requirements in chapter 2 will apply in addition to the specific inspection/technical provisions of TM 9-1377-20 & P and TM 43-001-39. Hermetically sealed containers will not be opened except to inspect for suspected damage and verification of serviceability. Installed life begins on the date the container was opened. Hermetically sealed containers that have been opened must be tagged and DSR cards must be annotated with the date opened (month/year). Opened containers will be resealed per paragraph 2-3c.

**D-8. Cartridge, 90-mm, HEAT, M371A1 (1315-C282).**

a. Surveillance inspections of 90-mm, M371A1 cartridges will be limited to visual inspections. No disassembly is authorized.

b. Nose cap removal will be performed only as part of an authorized screening or renovation operation at a prescribed maintenance facility. Unauthorized nose cap removal and reassembly has been determined to allow metal particle contamination of nose, resulting in possible premature functioning of the fuze and projectile.

**D-9. Cartridges, 152-mm.**

Rounds assembled with the older M157 cartridge case that used an adhesive and lock ring system have been suspended. In that system looseness between the cartridge case and projectile was a major defect. The latest model cartridge case, the M205, is mechanically secured to the projectile. Since there may be some shrinkage in the case material, relative motion may occur between the M205 cartridge case and the projectile. If the cartridge case is intact (without cracks), the ignition element secured to the case, and the cartridge case is not separated from the projectile, the round will be considered serviceable.

**D-10. Charges, supplementary.**

a. The defect classification for supplementary charges with loose pellets, as shown in MIL-C-50417, amendment 2, is applicable for new manufacture only and will not be used during inspection of fielded stocks. Loose pellets are not considered cause for rejection of supplementary charges in either bulk pack or assembled in complete rounds/projectiles.

b. Polyethylene supplementary charge pads (DWG 8838203, rev D) in 155mm, M549A1 HERA projectiles may be compressed to less than 1/16-inch thickness. This condition occurs when projectiles are assembled with energy absorbing lifting plugs which have an intrusion depth 1/4-inch longer than shock attenuating or "G" type lifting plugs. Compressed polyethylene pads do not present a safety hazard during storage, transportation, handling, or firing and are not to be considered a defect.

c. Supplementary charges manufactured April 1987 or later have oversize pads to prevent the charge from exiting the projectile when mistakenly rammed without a fuze. Revision P of drawing 879790 has oversized pad and is only configuration authorized for assembly to howitzer projectiles. Bulk packed charges with smaller pads are to be placed in unserviceable condition code for replacement of pad.

**D-11. Components, explosive.**

a. Many explosive components such as primers, ignition cartridges, and delay elements require a deterioration check test according to the

applicable MIL-SPEC to assure suitability for use before assembly into a complete round. A successful test will allow the component to be used for a period of up to 2 years.

b. Lots of explosive components without current deterioration check test will be assigned CC-D and held as is, pending a requirement for use.

c. Explosive component lots requiring a deterioration check test may be tested by the storing installation for local use. Prior to performing the test, telephonic or written notification to AMSIO-QAS must be made to assure that a local test will not duplicate test efforts underway or completed elsewhere.

d. Deterioration check tests of explosive components will be reported to AMSIO-QAS by DA Form 984 with documentation necessary for test evaluation.

e. AMSIO-QAS will periodically issue letter instructions. Components that require testing will be listed by model and type.

f. When subject materiel is to be shipped between CONUS installations and the item has a current test, the receiving installation should be contacted by the shipping installation. This contact is to determine that the remaining portion of the required test interval will not expire prior to the intended date of use for the item.

g. When subject materiel is to be shipped to an OCONUS installation, it must have a minimum of one year remaining before expiration of test or assessment interval. To ensure that remaining time is compatible with overseas command's planned usage, the following must be accomplished:

(1) All lots selected for shipment to OCONUS will be telephonically reported to AMSIO-QAS for coordination with the consignee.

(2) The test or assessment expiration date will be annotated on the shipping documents.

#### **D-12. Dynamite.**

a. Commercial dynamite.

(1) Straight dynamite, 60-percent and over in strength, will be turned at regular intervals as directed in DA PAM 385-64 and will be annotated on a locally devised form that will be attached to the stack. Other types of dynamite, ammonia, ammonia-gelatin, and gelatin dynamites will not be turned in storage. However, yearly, at the conclusion of the hottest portion of the year, a representative sample will be selected and the containers examined for evidence of nitroglycerin exudation on the exterior of the cartridge. If exudation

is found, the lot or lots involved will be reported on DA Form 2415 with a recommendation for destruction.

(2) Dynamite contained in Canine Explosive Scent Kit (Dynamite, 60 percent ammonia nitrate and nitroglycerin) is shelf-life material (18 months). This dynamite need not be turned in storage. However, at the conclusion of the hottest portion of the year, a representative sample, of the nitroglycerin based dynamite, will be selected and examined for evidence of nitroglycerin exudation. Dynamite exhibiting exudation will be destroyed in accordance with local procedures.

b. Military dynamite. Military dynamite does not require turning in storage but will be periodically inspected per procedures outlined in chapter 2 and the following information.

(1) Exudation, crumbling, disintegration, or cracking of military dynamite are classified as major defects. In the absence of these conditions, loose explosive that is wholly contained by the inner pack is not to be considered a defect.

(2) New production dynamite will have dark brown spots and colorations. It may also have a slick feel due to a wax coating applied to the outer wrapper. These are not defects unless accompanied by an oily exudate or crystallization.

(3) Lots known to contain loose explosives that have migrated outside the inner pack (in any amount) will be repacked prior to shipment.

#### **D-13. Electric blasting caps.**

Defect and inspection criteria outlined in appropriate TMs, drawings, specifications, and paragraph 2-7 of this bulletin will be used. In addition, the following criteria will be applied:

a. No more than one circumferential crack is permitted in the lead wire insulation at any or at all of the points where the wire is normally bent more than 90 degrees when in the authorized packaging configuration.

b. A longitudinal crack of less than 1/2-inch long with only one crack per 6-inch length of the wire is considered acceptable.

c. More than one circumferential crack, or more than one longitudinal crack of less than 1/2-inch, or combination of both in a segment of wire less than 6 inches is considered a minor defect.

d. Longitudinal cracks longer than 1/2-inch, longitudinal cracks terminating in a circumferential crack, or flaking of the insulation in any part of the wire are considered major defects.



#### **D-14. Improved conventional munitions (ICM).**

Separate loading projectiles assembled with fusible eyebolt lifting plugs. The fusible eyebolt lifting plug was developed to prevent cargo ejection from ICM separate loading projectiles if subjected to fire while in storage. The plug is painted yellow for identification purposes. Inspection of ICM projectiles will be as follows:

- a. Inspect fuze cavity for rust, moisture, obstructions, or missing expulsion charge container or cover. Presence of any of these discrepancies is a major defect.
- b. Inspect for and replace any deformed, cracked, or deteriorated rubber gaskets.
- c. Install plug after inspection and tighten to a torque value of 200 + 60 inch-lbs.
- d. Inspect fusible plugs for bent or cracked lifting rings, dislodged or missing fusible discs, or possible leakers. Leakers are recognizable by a ring of rust or cracked paint around the periphery at the interface of the disc and hole.
- e. Presence of any lifting plug other than the fusible type is a major defect.
- f. Missing or unidentifiable diamond or triangular markings is a major defect.

#### **D-15. Items belonging to other services.**

Most conventional ammunition items belonging to other services and stored at CONUS installations by the Army will be inspected and tested in accordance with DOD 5160.65-M, Joint Conventional Ammunition Quality Assurance Policies and Procedures.

- a. AMSIO-QAS is the focal point for QA matters concerning SMCA field service stocks.
- b. Munitions stored for other government agencies not covered by SMCA or private contractors are subject (as a minimum) to a receipt inspection and safety-in-storage inspections.
- c. Additional inspection procedures and their frequencies will be specific in the appropriate support agreement or memorandum with the owner. This includes, but is not necessarily limited to, foreign, experimental, and test ammunition.

#### **D-16. Mine, AT, HE, M15.**

- a. Inspection of the M603 fuze packed with this mine is necessary to ensure that a detonator is present. Absence of this detonator could indicate that the inert fuze used with the practice mine M7A2 had been

inadvertently assembled to the M15. Inspection for presence of the detonator is accomplished as follows:

- (1) Assure that safety clip is in place between pressure plate and body of fuze.
  - (2) Turn the fuze over and assure that varnished or painted lining compound on end of detonator shows in bottom of fuze.
  - (3) Absence of the detonator is classified as a major defect.
- b. Inspect the mine Belleville spring for deterioration or improper assembly (major defect).
- (1) Test the resistance of the mine pressure plate by applying hand pressure to the unfuzed mine pressure plate. The amount of force applied (5 to 25-lbs is suggested) should not exceed approximately 50-lbs. If no movement of the pressure plate is detected, the Belleville spring is considered serviceable.
  - (2) Remove the arming plug and visually examine the Belleville spring for deterioration, misalignment, or improper assembly (use of a flashlight will be required). Verify that the setting knob of the arming plug is properly assembled (see drawing #C37-1-7 and TM 9-1345-203-12&P). Arming plugs failing to meet this requirement will be classified as critical defectives. (Improperly assembled units allow the plug to be armed while the arrow is pointed toward the "safe" position.)
  - (3) Examine the fuze retainer spring **in the arming plug** for deterioration or misalignment (major defect).

**D-17. Mine, antipersonnel, M18 series.**

Inspect the electric blasting cap assembly M4 using test procedures in TM 9-1345-203-12&P, paragraph 2-3, and the following:

- a. Unpack the electric blasting cap assembly M4.
- b. Unroll the electric firing wire and visually inspect for defects such as cracks or peeling of the insulation material (also see para D-13).
- c. Reroll the firing wire on the spool and test with the M40 test set according to TM 9-1345-203-12 & P, paragraph 2-3d(9)(a) through (f).

**WARNING**

THE M4 BLASTING CAP ASSEMBLY CONTAINS AN M6 ELECTRIC BLASTING CAP. PERSONNEL MUST BE SHIELDED FROM THE EFFECTS OF ACCIDENTAL INITIATION OF THE CAP.

- d. Electrical continuity test failure and damage or deterioration to the insulation material that results in a bare wire exposure liable to cause failure are classified as major defects (see para D-13 for criteria).

D-18. Mine, AT Heavy M19 Non-Metallic

Inspected the mine for damage (cracked/dented body) IAW TM 9-1345-203-34, and ensure the mine's firing pin is "SAFE" by performing the following steps:

- a. Remove fuze and inspect rubber gasket.
- b. Remove any foreign material found in fuze well.
- c. Verify fuze is set to "S" and safety clip is in place.
- d. Remove shipping plug from detonator well and remove any foreign material.
- e. Verify the firing pin is located at the edge of the detonator well.
- f. Remove safety clip and rotate fuze setting knob to "A"; verify that the firing pin moves to the center of the detonator well.
- g. Return setting knob back to the "S" position; verify the firing pin returns to the side of the detonator well (critical defect if firing pin does not return).
- h. Replace safety clip.

D-19. Projectile 155-mm, illuminating, M485.

Defects found during inspection of the expelling charge will be classified as follows:

- a. Bulged (incidental).
- b. Cracks without exposure of contents (incidental).
- c. Split, cracked, torn, or burst with contents exposed (major defect).
- d. Cover separated with contents exposed (major defect).
- e. If during the course of the surveillance inspection, stuck expelling charges are encountered with no exposed black powder or moisture on top of the visible expelling charge or in the fuze well, additional samples equal only to the number of stuck charges are to be selected. If these samples evidence no black powder contamination or moisture, the lot is to be accepted for unrestricted issue and use.
- f. If stuck expelling charges exhibit cracks with exposed contents and/or moisture, they are to be treated as major defects, the lot condition coded accordingly, and reported per DA Pam 738-750.
- g. Loose components, evidenced by rattle inside the projectile ogive during handling, is not a defect or a safety problem. Rattle is caused by looseness of spacers inserted in base of projectiles during loading and packing to assure a tight pack. Projectiles exhibiting this rattle are considered acceptable if otherwise serviceable.

**D-20. Projectile, 8-inch, M404.**

a. Inspection of 8-inch M404 projectiles will include inspection of expulsion charge bags. Bags may be made of 2-mil low density polyethylene film which is known to deteriorate over time due to environmental stress cracking. Emphasis should also be placed on condition of lifting plug gaskets.

b. Any crack or tear in an expulsion charge bag is a major defect if moisture can enter or propellant escape. Deterioration or damage to lifting plug gaskets to an extent which would permit entry of moisture is also a major defect.

c. Expulsion charge covers can be removed using a sparkproof tool. Following inspection, cover edges are to be snapped back under the stake marks in the cup using finger pressure.

**D-21. Propelling charges, separate loading.**

Certain charges, such as the 155-mm M3A1, contain flash reducer pads. Although a caked flash reducer pad in itself is not a defect, it is an indication that the charge may have been exposed to moisture. Lots found with caked flash reducers will have a second sample of 20 rounds inspected for major defects listed below. (Lot disposition will then be determined based on the total sample of 40 rounds. Accept on 2 defectives, reject on 3 defectives.) However, caking is considered a defect in M2 and M3 flash reducers, that are separate items of issue, since they contain black powder. When sample charges have caked flash reducers inspector should check for following associated defects:

a. Container not airtight due to a perforated container, defective gasket or cover, etc.

b. Igniter pad damp or with caked/lumpy powder.

c. Mildew or stain on propellant bag.

d. Discoloration of propellant bag accompanied by loss of tensile strength.

**D-22. Items which have not been Hazard Classified**

a. Items which have not received a hazard classification IAW TB 700-2 must be considered Hazard Class/Division 1.1 Compatibility Group L for storage.

b. These items cannot be cleared for shipment except that captured military ammunition of unknown characteristics can be shipped by military air from one military airfield to another military airfield. These items can be moved about on a military installation except as above.

c. Item hazard classification must be requested from Director, U.S. Army Technical Center for Explosives Safety (USATCES) IAW the procedures of TB 700-2.

d. The primary source for determination of item hazard classification data is the Joint Hazard Classification System available on CD-ROM, automated formats and the world wide web at <http://www.dac.army.mil/ex/ext/hc.html>.

#### **D-23. HERA Projectile Defect Classification**

a. Projectiles, 155MM, M549, HERA (1320-D579) and Projectile 8-Inch, HERA, M650 (1320-D624) with missing or damaged obturating bands can cause a critically short round.

(1) A missing or damaged band evidencing a crack, cut or gouge extending across entire width of band is to be classified as a critical defect.

(2) A "loose" obturator band is a critical defect if the band will not remain in the groove. If band can be manually removed for groove, but can also be "snapped" back into groove, round is to be considered serviceable.

(3) Circumferential movement of obturator is not classified as a defect.

b. Excessive gap between warhead and motor body assembly is a critical defect for both 155MM, M549A1 (1320-D579) and 8-Inch, M650 (1320-D624) projectiles due to potential for motor separation. Gap criteria is as follows:

(1) A 0.0075 inch feeler gage shall not enter joint at any point.

(2) A 0.0035 inch feeler gage may enter joint by more than one-eighth inch on any one 30 degree segment of joint, however, it may not enter by more than one-eighth inch on the remaining 330 degree segment.

c. Gap greater than 0.010 inches at any point between forward and aft warhead assembly of the 8-inch, M650 is a major defect.

d. Age and storage environment related deterioration causes 155MM, M549A1 projectile obturators to become excessively brittle especially in hot dry climates. Ductility will likely partially return if subsequently stored in a humid climate.

(1) Excess brittleness is to be checked during inspections by removing and then reassembling obturators to projectiles. Procedure for this operation is contained in DMWR 9-1320-D579-F20, operations 8 and 11.

(2) Obturators which break or exhibit obvious cracks or splits are to be considered critical defects. This damage is to be distinguished from incidental surface cracks or scratches which do not affect obturator functioning.

#### **D-24. Receipt Inspection of Projectiles**

a. Projectiles, 8-Inch, M106 (1320-D680) with NPK metal parts are suspended, requiring ultrasonic test and assembly of ogive protector (OPA) and shock attenuating lifting plug. These projectiles have proven extraordinarily susceptible to developing cracks (due to residual stress) when subjected to impacts. Avoid striking projectile ogive area since any hard impact may cause projectile ogive to crack especially at cold temperature. Projectiles may be transported without special precautions as long as they remain palletized IAW approved drawings.

(1) Lots which have been ultrasonically tested (100%) for presence of cracks in area of ogive may be distinguished from other M106 projectiles by presence of polyethylene truncated cone (ogive protector assembly) assembled to ogive and shock attenuating lifting plug assembled to fuze well.

(2) Unit returns of projectiles which have indication of rough handling are to be classified as unserviceable requiring ultrasonic screening. Projectiles which have broken shock attenuating lifting plugs are not repairable.

(3) Field service returns are to be classified unserviceable, requiring ultrasonic screening unless it can be determined with reasonable certainty that ogive protector and lifting plug have not been removed by troops.

b. Any projectile which is known or suspected of having been rammed into a howitzer weapon is to be placed in CC-H and authorized for demilitarization. Howitzer user's manuals caution howitzer crews not to load a previously rammed projectile into a weapon. One exception is Copperhead projectiles when rammed into a cold tube.

#### **D-25. Projectile, 155MM, M825 Series Defect Classification**

a. Projectile, 155MM, M825/M825A1 WP (1320-D528) with missing or damaged obturating bands can cause a critically short round.

(1) A missing or damaged band evidencing a crack, cut or gouge extending across entire width of band is to be classified as a critical defect.

(2) A "loose" obturator band is a critical defect if the band will not remain in the groove. If band can be manually removed for groove, but can also be "snapped" back into groove, round is to be considered serviceable.

(3) Circumferential movement of obturator is not classified as a defect.

b. Cannister component lot numbers have been stenciled on each projectile. This is not a defect but makes end item lot identification more difficult. Item drawings provide correct location for projectile lot number.

c. Corrosion on aluminum portion of M825 projectile base is a critical defect. Procedure for conduct of inspection and defect classification criteria is same as that for M483A1 projectiles with old type "green" bases (SASIP 742-1320-94-250). Steel portion of M825 projectile base is that portion from base/body joint extending rearward for one-fourth inch. Damage to protective coating should be repaired using M825 projectile drawings, provided there is no corrosion present.

d. M825 projectiles may rattle or exhibit other internal noise when nose is tipped or shaken. This condition is common due to slight looseness of components and does not affect safety, firing or end item performance.

**D-26. ROCKET, 66MM INCENDIARY, M74, TPA (1340-H110)**

a. Evidence of greyish/white residue on round/ warhead could in fact be an oxidation product from the triethyl aluminum, but could also be residue from excessive epoxy sealant used to secure fill plug.

b. If greyish/white residue is found on warhead, perform the following test:

Warning: Hydrochloric acid is corrosive and should be handled with care. If acid contacts skin, it should be immediately flushed with water and/or sodium bicarbonate solution (baking soda and water).

(1). Test solution is hydrochloric acid. Dilute concentrated hydrochloric acid (commercial muriatic acid or 12n laboratory acid) with an equal volume of water to give approximately 6n hydrochloric acid. Test solution should be poured into a dropper bottle for use. This solution should be obtained from the medical officer, post hospital, laboratory or pharmacy.

(2). Neutralizing/cleanup solution is a saturated solution of sodium bicarbonate (baking soda) in water. Mix the baking soda into a container of water until no more dissolves.

(3). Place 2-4 drops of acid solution directly on powder on warhead or on powder scraped off warhead into a plastic or ceramic container (dish).

(4). If residue is oxidation product from triethyl aluminum, it should dissolve away. Follow procedures of reference directing clip be submerged in oil, and report as a critical defect.

(5). Residue which is epoxy sealant will not be affected by the acid solution.

(6). After each test, acid wetted area should be neutralized by wiping with a rag wet with bicarbonate solution in paragraph 5b.

- a. FSC: 1305.
- b. SASIP: 742-1305-94-020.
- c. Ammunition Type: Small arms cartridges through caliber .50.

d. The small arms family of cartridges (through caliber .50) are those which are complete assemblies consisting of all components necessary to fire a weapon (i.e., cartridge case, primer, propellant and bullet or shot). For a complete description of various cartridges, see TM 43-0001-27 and applicable drawings.

#### E-2. Unique safety precautions.

a. Reasonable care will be taken during inspection and handling. SAA may function if the primer is inadvertently struck.

b. To preclude the mixing and issue of other types of SAA with blank ammunition, the following minimum precautions will be taken:

- (1) Conduct no operations involving other types of SAA in bays or rooms in which operations involving blank SAA are being conducted.
- (2) Inspect all equipment and work areas prior to use to insure service rounds are not present.
- (3) Restrict use of all involved equipment to blank SAA until the operation is completed.
- (4) Incorporate controls on linking machines that will prevent entry of all rounds except blank ammunition.
- (5) Conduct a 100-percent visual inspection of all rounds prior to linking, clipping or carton packing and another 100-percent inspection before final packing to assure that only blank ammunition has been linked/clipped or packed in cartons.

c. Restrictive marking stenciled on the exterior container of SAA.

(1) Prior to 1976, it was common for Frankford Arsenal to instruct the manufacturers of SAA to stencil the exterior containers of restricted ammunition prior to containers leaving the manufacturing facility. The restrictions were not forwarded to higher headquarters for inclusion in TB 9-1300-385.

(2) There is no available record of the lots with restrictions stenciled on boxes and it is not anticipated that an attempt will be made to list these restricted SAA lots in TB 9-1300-385.



(3) Restrictions stenciled on boxes of SAA are considered valid and all ammunition lots so marked should be issued and used according to these restrictions.

*d. SAA for overhead fire.*

(1) SAA intended for overhead fire is manufactured to different, more stringent specifications and is identified by NSN, not by lot number.

(2) Only SAA identified for overhead fire in supply catalog SC 1305/30 IL or DOD Consolidated Ammunition Catalog may be used for that purpose.

(3) AR 385-63, Policy and Procedures for Firing Ammunition for Training, Target Practice and Combat, states that units intending to use ammunition lots for overhead fire must have lots approved for such use. This guidance does not apply to SAA.

*e. Class V materiel supplied to non-SMCA customers.* Shipment or transfer of accountability of caliber .22 and blank small arms ammunition to non-SMCA customers does not require a functional clearance.

**E-3. Testing and equipment requirements.**

a. Profile and alignment gaging and pull and twist tests will be performed during IRI per paragraph 2-8, applicable drawings, and applicable specifications. Pull and twist tests will also be performed during subsequent cyclic and receipt inspections.

b. Test cartridge according to Table E-1

Table E-1 Gaging Requirements

Model	IRI	RI	PI	UBLI
All SAA	A,B,C	B,C,D	B,C,D	B,C,D

Legend:  
A - Profile and alignment gage.  
B - Pull test. (See Table E-4 for specific pull requirements.)  
C - Twist test. (See MIL-STD-644 for specific procedures.)  
D - Profile and alignment gaging required only if not accomplished during IRI, or if round is visibly damaged.  
Lot will not be rejected if damaged round fails to gage. Gage failures will be reported IAW requirements of basic SB. (Profile and alignment gaging is required only one time during life cycle of lot.)

c. Table E-2 identifies test and measuring equipment.

**E-4. Inspection category and sampling plan.**

a. Inspection category: Category W (five years) for items not packed in steel cans with gaskets (includes inert items). Category U (seven years) for items packed in steel cans with gaskets (includes inert items).

b. Table 2-3 will be used to determine sampling plan for SAA.

Table E-2 Equipment Identification List

Description	Caliber	NSN	Part Number	Model
Gage, Profile and Alignment	5.56MM	5220001198607	8654100	M193, M195, M196,
	7.62MM	5220001190873	8648501	M200, M855, M856 M59, M61, M62, M64, M80, M82,
	CAL .30	5220001190871	8648308	M118, M160, M198, M276, M852
	CAL .30	5220001190872	8648580	M1, M2, M14, M25,
	9MM	5220012856426	8649470	M72, M1909
	CAL .38	5220001190868	8651500	M1, M27
	CAL .45	5220001190869	8648570	M882, M41
	CAL .50	5220001190870	8648301	M1, M9, M26, M1911, M1921
	CAL .50	5220001190874	8648316	M1, M2, M8, M10, M17, M20, M23, M33, M48A2, T249E2

c. Samples of small arms ammunition packed in metal (terneplate) lined M1917 boxes will be used on a recurring basis. Terneplate lined lids will be temporarily resealed utilizing tape and wax as indicated in basic SB. Boxes will be identified as surveillance samples, not to be shipped. In the event that the entire lot is scheduled for shipment, resolder the lids and include the samples in the shipment.

(3) Individual lots of SAA in a potential conglomerate stockpile need not be delinked or declipped prior to receipt of disposition instructions. Lots will be maintained by individual lot number, functional code, model number and caliber. Various models of tracer within one caliber, whether serviceable or deteriorated, may be placed into one conglomerate lot.

(4) Quantities will be accumulated and carried on record as usable assets under the appropriate condition code. Quantities of 50,000 and over of the same model and caliber will be reported on DA Form 2415 (Ammunition Condition Report) according to DA PAM 738-750 for disposition instructions.

(5) If relinking is authorized, only cartridges from one producer per type (regardless of year of manufacture) will be utilized in a belt of linked ammunition. A maximum of 100,000 cartridges will be packed as a lot. Lot number assignment will be according to MIL-STD-1168A. Data cards will be prepared and distributed according to MIL-STD-1167C and data item description DI MISC 80043.

(6) Conglomerate lots will be inspected for serviceability at the same interval as other category W items i.e., five years. Sample size will also be the same.

(7) Packed lots will be identified by DODIC and nomenclature furnished by IOC.

(8) Repackaging instructions will also be provided by IOC.

*c. SAA with lost lot identity.*

(1) All SAA with lost lot identity (excluding commercially procured items such as caliber .22) will be picked up on accountable records in condition code K pending inspection and classification. Ammunition determined by inspection to be serviceable will be assigned condition code C priority-of-issue for training use in hand weapons (rifle, pistol or shotgun) or ground and vehicle mounted machine guns, M60 series (7.62-mm) and M2 or M3 series (caliber .50). Every effort will be made to expend the rounds in training. These rounds are also authorized for emergency combat use.

(2) Serviceable caliber .50 ammunition with lost lot identity will be used in the M85 machine gun for training provided that:

(a) M15A2 links which are suspected or known to have been previously cycled in M85 machine gun are not used. M15A2 link is designed for one time use.

(b) Field returns of loose rounds that were not linked in M15A2 links for use in M85 machine gun will not be issued for use in the M85 machine gun. Ammunition suitable for use in M85 is limited to assets known to be originally assembled with M15A2 link, and is limited to relinking of partial belts to standard pack configuration.

(3) SAA with lost lot identity is prohibited from use for overhead fire. All 7.62-mm ammunition with lost lot identity is also prohibited from firing in M73, M219 and M240 series machine guns.

(4) Munitions and configuration components (links, clip, etc.) will be segregated by caliber, type and model designation. A 100-percent visual inspection and classification of rounds and components will be made to include performance of required testing, where applicable, according to MIL-STDs, drawings and provisions of this appendix. Links which have been cycled through weapons will not be reused.

(5) Serviceable munitions will be assigned a local lot number consisting of a three digit activity symbol, lot sequence number, identification code "U" (unknown) and year established, e.g., BAP-3U-80.

(6) Level of pack will depend on the local situation. As a minimum, preservation and packaging will be accomplished to assure adequate security, provide transportation safety and allow expected field handling by the user. In addition to standard markings, packaging will be identified by local lot number and training use marking, e.g., DAP-3U-80, training use.

(7) Records and reports. DSR cards and accountable records will be maintained using the local lot number. Malfunction reports, WARS report, input, etc., on these munitions will be made in a usual manner using the local lot number. Ammunition Data Cards are not required for these lots.

(8) CONUS posts, camps or stations without adequate personnel and facilities to perform inspection and processing of SAA will report through command channels to IOC according to DA PAM 738-750 for disposition.

d. Repack of small caliber ammunition. The following criteria is to be used when repacking stocks of ammunition through caliber .50 to different configurations:

(1) All lots must be certified for use in the weapon(s) for which they are being repackaged. Certification for each lot will be obtained by furnishing a list of component lots to AMSIO-QAS. Request for lot certification will indicate date repack is to start, designate the NSN to which ammunition will be repacked, and must be received by IOC at least three months before the operation is scheduled to begin. Lots not certified for use in weapons for which repack is being accomplished will require testing. Tests will be arranged by AMSIO-QAS upon request. Cost of tests must be borne by the requesting facility.

**2. Major.**

a. Damaged rotating band.	All	Visual	
b. Fuze well threads damaged.	All	Visual	Para H-6e
c. Fuze well threads fail to gage.	M1, M760 M548, M913	Gage	Para H-6e
d. Fuze not staked or improperly staked.	All fuze cartridges	Visual/ Drawing	
e. Fuze fails disassembly torque test.	All fuze Test	Torque	
f. Fuze fails setting torque test.	All with MTSQ (except M577 series)	Torque Test	Para H-6o
g. Cartridge case case severely dented.	All	Visual/ Gage	Para H-6f
h. O-ring or fuze sealant missing.	M444 ICM	Visual	Para H-6g
i. Mixed zones.	All	Visual	
j. Propelling charge cut or torn.	All	Visual	Para H-6h
k. Deteriorated propellant bag.	All	Visual	Para H-6h
l. Incorrect sequence of propelling charge increment.	All with adjustable charges.	Visual	
m. Foil side of bag, charge 5, not facing primer.	All w/M67 charges with lead foil.	Visual	Para H-6h
n. Lead carbonate or lead foil missing.	All	Visual	Para H-6h
o. Ctg case/proj fail to chamber gage.	All	Gage	Para H-6f
p. Hole through closing cup.	Blank, M395	Visual	Para H-6n
q. Closure cup loose.	Blank, M395	Manual	
r. Crack in closing cup.	Blank, M395	Visual	Para H-6n
s. Tracer plug or disks damaged.	HEP-T, M327	Visual	
t. Excessive gap between rocket motor and warhead.	HERA, M548 M913	Gage	Para H-6p

**3. Minor**

a. Closing cup seal damaged.	Blank, M395	Visual	Para H-6n
b. Loose fuze well liners.	HE; M1, M760, M548, M913	Manual	Para H-6m
c. Suppl charge pad missing.	M1, M760 M548, M913,	Visual	
d. Cord between increments broken.	All with adjustable increments.	Visual	
e. Fuze well spacer missing.	All unfuzed HE and HERA	Visual	

#### H-6. Inspection description and notes.

a. Remove propelling charge from cartridge case. Apply light side to side pressure to primer end with fingers. Primer is only press fit into cartridge case so care should be taken to avoid excess force. Slight movement of primer from side to side is not considered a defect unless movement results in primer head above flush with base of cartridge case.

b. A stiff non-sparking ruler with a true edge of at least 4 inches in length shall be swept across cartridge base. If resistance is noted, cartridge case will be considered to have a high primer.

c. Cartridges requiring supplementary charges may detonate in-bore if fired without charge. Supplementary charge prevents booster from striking base of fuze liner, should it separate from fuze.

d. HE projectiles known to have been dropped on ogive or evidencing damage to this area shall be classified unserviceable. Report this ammunition to, IOC, AMSIO-QAS by message, identifying lot number, quantity, and DODIC and include circumstances of incident causing damage. Retain cartridge, pending response to report.

e. Ascertain reason for gaging failure, ie. malformed threads, eccentric fuze well, cocked or shallow fuze well, etc. Projectiles with damaged threads which pass gaging are not defective. **A concentricity gage (deep cavity) is not available for M548 HERA cartridges. Utilize an inert M514A1 proximity fuze to assure acceptable concentricity and depth of fuze well. The M514A1 proximity fuze is available from IOC, ATTN: AMSIO-SMA; order part number 1920211-708153 I.**

f. Projectile should fit freely into mouth of cartridge case. Cartridges which fail gaging will be reported IAW para 2-7 of this bulletin.

g. Polysulfide rubber on fuze threads or O-rings between fuze and ogive are alternate methods to seal fuze well against intrusion of moisture. Absence of one or the other might cause degradation of expulsion charge with failure of cargo to eject properly.

#### *h. Propelling Charges.*

(1) M67 Propelling charge.

(a) Consists of seven numbered increment bags. Increments are stacked in cartridge case starting with increment one at the base.

(b) Charge 5 has lead foil sewn into bag (except for charges with integral lead carbonate). Foil must face primer. Visual inspection will indicate whether this is present.

**TABLE L-1 EQUIPMENT IDENTIFICATION LIST**

DESCRIPTION	PART NUMBER	APPLICATION
Chamber Gage (Man-portable)	<b>12948080</b>	All 120MM Ctgs
Proportional Counter	Commercial Equip	Swipe (Smear) Test
Ring Gage Set	PN: 12900358 5220-01-359-3001	NSN: ALL

NOTE: The ring gage set may be used in lieu of the man-portable chamber gage, if unavailable.

**L-4. Inspection Category and Sampling Plan:**

- a. All 120MM cartridge inspection category: Y (3 years, 20 round sample size).
- b. Stockpile reliability testing is conducted periodically on selected samples from specific lots in the unit basic loads. This test program is designed to determine the effect uploading, handling, and downloading by tank crews and prolonged exposure to adverse storage conditions may have on performance. Ballistic testing and physical teardown inspection will be performed by the designated licensed facilities. Test intervals will be as prescribed by HQ, IOC, ATIN: AMSIO-QAS, Rock Island, IL 61299-6000. DU ammunition samples will not be individually swiped. Only exterior PA-116 Shipping & Storage Container will be swiped in accordance with paragraph L-7n. (Samples will be swiped as part of the ASRP test).
- c. An initial upload inspection will be conducted as cartridges are uploaded by a using unit during peace time loading.
- d. The annual or semi-annual basic load inspections will be performed on cartridges by QASAS according to SB 742-1, Chapter 9 and this SASIP. Ammunition contained in basic load stocks will not be rejected for minor correctable defects.
- e. Storage of empty PA-116 containers should be examined to verify that lids are in place and containers protected from the elements.
- f. QASAS should report any observed stowage area that could affect serviceability of the ammunition. Examples of such areas are: tank stowage compartments including the hull racks which may have standing water, rust condensation, burred racks, or swing tubes, etc. Report findings to: HQ, IOC, ATIN: AMSIO-QAS, Rock Island, IL 61299-6000.

g. QASAS supporting upload operations in conjunction with armored unit deployments should assure that tank stowage compartments are thoroughly dry prior to ammunition upload. QASAS at the receiving end of deployment should assure uploaded ammunition serviceability at earliest opportunity to preclude potential moisture damage to the combustible cartridge case and forward adapter. HQ, IOC, AMSIO-QAS and AMSIO-SMA-T, must be advised of any damage or deterioration of ammunition or stowage compartments attributable to moisture damage in transit. Damage reports shall provide the bumper number and unit ID for the affected tank.

L-5. Specific Inspection Points:

Items will be inspected and classified according to Tables L-2 through L-6.

TABLE L-2 PA-116 SHIPPING & STORAGE CONTAINER:

CLASSIFICATION	INSPECTION METHOD	INSPECTION REFERENCE
1. CRITICAL - none defined		
2. MAJOR. a. Cover Assembly nonfunctional..... b. Gasket missing or defective..... c. Internal components/packaging missing or defective..... d. External components missing or defective..... e. Dents greater than ¼ inch deep that prevent..... cartridge extraction f. Perforations/holes..... g. Internal components/packaging moisture soaked..... h. Markings illegible, precluding proper identification..... of nomenclature and lot number.	VISUAL..... VISUAL..... VISUAL..... VISUAL..... VISUAL..... VISUAL..... VISUAL..... VISUAL.....	Para. L-6e      Para. L-6l
3. MINOR - Protective finish on container body (not rims and..... rings) with pitted corrosion over 10 percent of surface.	Visual.....	



TABLE L-3: CARTRIDGES, 120MM, APFSDS-T,  
M829 (C786), M829A1 (C380), AND M829A2 (C792)

CLASSIFICATION	INSPECTION METHOD	INSPECTION REFERENCE
1. CRITICAL: None Defined.		
2. MAJOR: a. Failure to chamber/gage..... b. Sabot segments misaligned..... c. Rear Obturator cracked/damaged..... d. Sabot cracked..... e. Missing components..... f. Cracked cartridge case forward adapter..... g. Yellow corrosion in sabot gaps and/or windshield.. interfaces. h. Corrosion on projectile body causing pitting..... i. Projectile partially or completely separated from the combustible cartridge case.	Gage..... Visual..... Visual..... Visual..... Visual..... Visual..... Visual..... Visual.....	Para. L-6f Para. L-6c  Para. L-6d Para. L-6c  Para. L-7  Para. L-6g
3. MINOR: None defined.		

NOTE: See Table L-6 for all cartridge case and case base defect criteria.

TABLE L-4: CARTRIDGE, 120MM TPCSDS-5, M865 (C785)

CLASSIFICATION	INSPECTION METHOD	INSPECTION REFERENCE
1. CRITICAL: None Defined.		
2. MAJOR: a. Rear nylon band defective..... b. Sabot cracked..... c. Missing parts..... d. Failure to chamber/gage..... e. Pitting corrosion on projectile assembly..... f. Obturators - loose, cracked or other damage..... which would preclude gas seal. g. Rubber seal on Sabot torn or split.	Visual..... Visual..... Visual..... Gage..... Visual..... Visual..... Visual.....	Para. L-6d  Para. L-6f
3. MINOR: None defined.		

NOTE: See Table L-6 for all combustible cartridge case and case base and seal assembly defect

TABLE L-5: CARTRIDGES, 120MM, HEAT-MP-T, M830 (C787)  
AND M830A1 (C791, TP-T M831A1 (C784) AND XM908 (CA05)

CLASSIFICATION	INSPECTION METHOD	INSPECTION REFERENCE
1. CRITICAL: None defined.		
2. MAJOR: a. Missing parts..... b. Copper/nylon band damaged to the point of... precluding chambering. c. Failure to chamber/gage..... d. Spike tip damaged (M830 & 831A1)..... e. Proximity sensor damaged M830A1)..... f. Sabot cracked or pitted (M830A1 & M908)..... g. Shoulder switch bent or cocked M830)..... h. Spike shoulder damaged M830)..... i. Projectile rubber seal damaged..... j. Spike Tip loose (M830)..... k. Pitting corrosion on projectile..... l. Projectile partially or completely separated. cartridge case. from m. Projectile rotates relative to forward adapter (M830 only).*	Visual..... Visual/gage....  Gage..... Visual..... Visual..... Visual..... Visual..... Visual..... Visual..... Visual..... Visual/Manual..Visu al..... Visual/Manual..  Visual/Manual..	Para. L-6f         Para. L-6h Para. L-6j
3. MINOR: None defined.		

NOTES:

- See Table L-6 for applicable combustible cartridge case and case base and seal assembly criteria.
- \* Potential exists for M830 projectile fins to break DIGL-RP stick propellant.

TABLE L-6 COMBUSTIBLE CARTRIDGE CASES AND  
CASE BASE & SEAL ASSEMBLY, 120MM TANK AMMO

CLASSIFICATION	INSPECTION METHOD	INSPECTION REFERENCE
1. CRITICAL: None defined.		
2. MAJOR: a. Abrasion damage or peeling causing coating to be absent in one continuous area. Yellow-white nitrocellulose case material exposed in this area totaling 10% or more of the total cartridge case surface (30 sq. in. or 192 sq. cm). b. Case broken exposing internal propellant containment bag. c. Skive joint (glue joint at case shoulder)separation..... d. Case base and seal assembly (CBSA) separated from..... cartridge case body. e. CBSA rubber seal torn or separated..... f. Primer above flush..... g. Corrosion of CBSA with visible pitting..... h. Non-removable corrosion on primer..... i. Evidence of moisture damage resulting in a softening or penetration of the combustible ctg. case (CCC) or forward adapter.	Visual.....   Visual..... Visual..... Visual.....  Visual..... Visual/Manual Visual..... Visual/Manual Visual/Manual	
3. MINOR: Abrasion damage/peeling causing coating to be absent in one continuous area. Yellow-white nitrocellulose case material seen on this area totaling more than 0.25 sq/in or 1.6 sq/cm, but less than 10 percent of total surface.	Visual	Para L-6n

NOTE: The M830 (C787) has a live forward adapter.

#### **L-6. Inspection Description and Notes:**

a. Movement between sub-projectile and sabot is permissible and shall not be considered a defect. M829, M829A1, and M829A2 projectile rotation at the case adapter/obturator joint is permissible.

b. Sabot segment gaps are permissible provided that the cartridge can be chambered.

c. The M829 projectile contains a forward nylon centering band composed of four individual segments attached to sabot petal. The gaps between centering band segments are aligned with sabot segment gaps. The M829A1 projectile does not contain a forward centering band.

d. The M829, M829A1, and M829A2 projectile assemblies contain a Depleted Uranium (DU) fin stabilized penetrator. The M829 series sub-projectiles consist of a penetrator, windshield, and fin. The number of sabot petals and their composition material vary. The M865 TPCSDS-T projectile assembly consists of a steel core encased in three aluminum sabot segments attached to rubber obturator and steel stabilizer.

e. Container dents that are less than 1/4 inch do not require repair. Dents greater than 1/4 inch that are impairing the structural integrity of the PA-116 container or prevent the removal of the cartridge are major defects. A cartridge that cannot be removed from the PA-116 shipping and storage container shall be placed in CC-F and reported to HQ, IOC, ATTN: AMSIO-SMA-T, Rock Island, IL 61299-6000, or emailed to [amsio-gas@ria-emh2.army.mil](mailto:amsio-gas@ria-emh2.army.mil).

f. Perform chamber gaging according to paragraph L-3. Standard ring gage set may be used in absence of man portable chamber gage. NOTE: Ring gages will detect oversized conditions for their specific profile dimension. However, gaging with projectile and case ring gages will not detect an out-of-alignment condition at the mating point of the projectile assembly and cartridge case forward adapter. Therefore, where available, the MPOG is the preferred gaging method to properly verify the entire profile and alignment of a 120MM cartridge.

g. Any deformity (such as tip bluntness or off-center displacement) of the windshield tip may affect the aero-ballistic performance of the sub-projectile.

h. Samples with projectiles exhibiting movement in relation to the cartridge case are not considered defects unless one or more of the following conditions are also noted:

(1) Cartridge deformation (profile misalignment) preventing gaging or chambering.

(2) Evidence of propellant dusting on outside of cartridge case or projectile.

(3) The affected cartridge is either an M829A2 (C792) or M830 (C787) with stick propellant that could become damaged by the movement of penetrator fins or projectile boom/fins.

i. Testing has demonstrated that the electric primer assembled to the round is insensitive to initiation by mechanical impact. Therefore, primers and igniters above flush are considered major defects, rather than critical. Any straight edge rule is suitable for checking primers for an above flush condition.

j. Any cut, nick, or gouge in the projectile rubber seal (M830 or M831A1) more than one half the width or more than 2 inches in circumference shall be cause for rejection.

k. Moisture noted within PA-116 containers indicates ammunition was either wet when containerized or the interior components of the PA-116 were wet when the ammunition was packed out. Containers with wet interior projectile supports and spacers are considered to be unserviceable until the moisture intrusion condition is corrected. Cartridges found in such containers must be closely examined for moisture damage according to the applicable tables.

l. Cartridge cases will be inspected for evidence of moisture, dents, or penetration. Defects can result from packaging or the cartridge not being dry at time of packaging, upload, and download operations during inclement weather, or exposure to standing water or heavy condensation in the bustle and hull ammunition storage racks. Inspect for water damage, soft cartridge cases, and forward adapters which easily deform under hand pressure, water marks indicating case exposure to standing water and metal parts rust or corrosion.

m. A windshield with a single longitudinal crack less than two inches in length is considered an incidental defect.

n. **Cartridge cases which have yellowish-white combustible material showing, less than 10 percent of the total surface area of the cartridge case, will be touched up IAW procedures contained in TB 9-2350-320-14 and TB 9-1300-251-34&P.**

**L-7. Swipe (Smear) Test (M829, M829A1, and M829A2, Cartridges Only):**

a. A swipe test is performed on a DU cartridge exhibiting external evidence of any DU corrosion or particles migrating to the surface of the sabot. Due to the extremely tight fit of the sabot segments, the potential for DU migration is considered to be very remote. Therefore, a swipe test shall only be performed under either of the following circumstances:

- (1) Damaged M829 series cartridge resulting in an

**O-1. Item description.**

a. FSC: 1320.

b. SASIP: 742-1320-94-252.

c. Ammunition Type: Projectile, 155mm HEAT, Cannon-Launched, M712 (Copperhead) and Projectile, 155mm Training, M823.

d. Item is a separate loading, laser-guided, high explosive projectile, M712 (Copperhead). Dummy projectile, M823 is a training item designed to train weapon crews in handling M712.

**O-2. Unique safety precautions.**

No unique safety precautions are applicable to this item.

**O-3. Testing and equipment requirements.**

No gaging or special testing is planned as part of the ammunition surveillance portion of the ASRP for this projectile. Extensive laboratory testing and detailed ballistic testing will be the primary source of data for reliability estimates according to AR 702-6.

**O-4. Inspection category and sampling plan.**

a. RI will be accomplished IAW Chapter 2 and criteria contained in Tables O-1 and O-2. Container will not remain open for more than 72 hours. Prolonged exposure to environmental humidity will cause excessive damage to the projectile and possible degradation in reliability.

b. PI inspection is not required. In lieu of a PI, storage monitoring (SMI) of the M712 will be performed every 3 months. SMI will consist of 100 percent verification of the humidity indicator. Replacement, if indicated, will be performed according to TM 9-1300-251-34. Whenever the container is opened for replacement of desiccant, an inspection of the projectile will be performed according to table O-2 and results noted on DSR card.

**O-5. Specific inspection points.**

Container and projectile will be inspected according to chapter 2, tables O-1 and O-2 (as appropriate). Opening of samples will be performed in such an environment as to limit possibility of moisture entering the container. These inspections will not be performed during periods of high humidity, (such as rainstorms). The time a container remains open or a projectile is removed from container will be kept to a minimum necessary to perform inspection. Accept or reject for the

inspection of projectile and inner pack will be 0 and 1 respectively for critical, major and minor defects. Outer pack accept or reject will be according to chapter 2.

Table O-1. Metal Container Exterior.

Classification	Model	Inspection Method	Inspection Description
1. Critical - None defined.			
2. Major:			
a. 40-percent sector on humidity indicator is not blue	M712	Visual	Para O-6a
b. Stiffening ribs damaged	All	Visual	
c. Damaged latches	All	Visual	
d. Damaged or loose humidity indicator	M712	Visual	
e. Loose or broken handles	All	Visual	
f. Container dented to the extent that contents are not protected.	All	Visual	
3. Minor:			
a. Rust or paint deterioration	All	Visual	
b. Container dented to the extent that contents are still protected.	All	Visual	
4. Incidental: Container serial number missing or illegible.	M712	Visual	Para O-6f

Table O-2. Projectile and Container Interior.

Method	Description	Inspection	Inspection	Classification	Model
1. Critical:					
a. Evidence of composition B leakage	M712	Visual			
b. Cracked or deeply gouged obturator	M712	Visual			
2. Major:					
a. Aft closure damaged to extent that it would prevent engagement of extractor.	M712	Visual			
b. Missing or loose splice screws	M712	Visual	Para O-6b		
c. Loose or missing access cover	M712	Visual	Para O-6c		
d. Broken, cracked, or missing projectile ogive	M712	Visual			
e. Crack or dent in any part of projectile body	M712	Visual			
f. Wings extended	M712	Visual	Para O-6d		
g. Fins are loose, broken, or not in retracted position	M712	Visual			
h. Water droplets condensed or fogged on interior surface of nose cone.	M712	Visual			
i. Window portion of projectile ogive (nose cone) severely scratched or gouged.	M712	Visual			
j. Dirt, debris, or foreign objects in wing or fin slots	M712	Visual			
k. Dials on code or time switches missing, broken, or illegible.	All	Visual	Para O-6e		
l. Excessive rust or pitting of bourrelets	All	Visual			
m. Switch bracket broken or damaged	All	Visual			
n. Cracked or deeply gouged obturator	M823	Visual			
o. Missing plastic inserts (preload tabs)	All	Visual			
p. Internal pressure pads missing, damaged or deteriorated.	M712 Cntr.	Visual			
q. Cradle pads missing, loose or damaged	All Cntrs.	Visual			
r. Stitching loose or missing	All Cntrs.	Visual			
s. Straps ripped or broken	All Cntrs.	Visual			
t. Damaged, leaking or missing gasket	M712 Cntr.	Visual			
3. Minor:					
a. Abrasions or smudges on window portion (nose cone) of projectile ogive.	M712	Visual			
b. Water droplets on or fogging interior surface of projectile ogive (nose cone).	M823	Visual			
c. Window portion of projectile ogive (nose cone) abraded, smudged, scratched or gouged.	M823	Visual			
d. Dirt, debris or foreign objects in wing or fin slots	M823	Visual			

**O-6. Inspection description and notes.**

*a. Humidity indicator.*

(1) If 40-percent sector on the humidity indicator is not blue for M712, desiccant will be changed according to TM 9-1300-251-34.

(2) The M823 training projectile container should not contain desiccant. If present, desiccant should be removed during IRI. The humidity indicator card will be marked "Dummy" and placed in humidity indicator unit.

*b.* The splice screws should be finger tight and at or below flush with the projectile surface.

*c.* Access cover missing; screw on cover loose and cannot be made finger tight by hand turning. Screws must be at or below flush with the cover surface.

*d.* Wings extended indicate squib has been fired.

*e.* Switches must rotate freely when firing codes are being set into projectile.

*f.* Decals are no longer required on Copperhead containers. However, container top and bottom are a matched set, identified by serial numbers and should be assembled as one unit. Mismatched top and bottom may prevent container from retaining seal against humidity. Serial number may be found on a decal or marked with stencil ink. If decal is peeled off, replace with stencil. If both top and bottom are missing or unidentifiable, stencil both top and bottom with prefix "CNTR" followed by projectile serial number.

APPENDIX P  
SMOKE GRENADES

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**P-1. Item description.**

a. FSC: 1330

b. SASIP: 742-1330-94-320.

c. Ammunition Type: Grenade, Hand, Smoke, M18; Grenade, Hand, Smoke, HC, AN-M8; Grenade, Hand, Smoke, WP, M15; Grenade, Hand-Rifle, Smoke, WP, M34; Grenade, Hand, Smoke, Colored, M48; Grenade, Hand, Incendiary, TH3, AN-M14 **and Grenade, Hand, Smoke, TA, M83.**

d. Grenade, Hand, Smoke, HC, AN-M8 (G930). This is a burning type grenade used to generate white smoke for screening activities of small units. It is also used for ground-to-air signaling. The grenade body is a cylinder of thin sheet metal. It is filled with HC smoke mixture topped with a starter mixture directly under the fuze opening. The duration of smoke screen or signal is 105 to 150 seconds. Grenade is fuzed with the M201A1 pyrotechnic delay-igniting fuze.

e. Grenade, Hand, Smoke, WP, M15 (G935). Bursting type grenade used for signaling, screening and incendiary purposes. The grenade body is of sheet steel and cylindrical in shape. The body has a fuze well liner and is filled with 15 ounces of WP. The grenades are assembled with the M206A1 or M206A2 pyrotechnic delay-detonating fuze. The screening effect of the smoke is limited because WP burns with such intense heat, the smoke tends to rise rapidly. Pieces of WP will burn for about 60 seconds, igniting any flammable substance contacted.

f. Grenade, Hand-Rifle, Smoke, WP, M34 (G937). Bursting type grenade used for signaling, screening, and incendiary purposes. It may be thrown by hand or launched from a rifle, using the M1A1 or M1A2 grenade projection adapter. The grenade body is of serrated steel and is cylindrical in shape. The body has a fuze well liner and is filled with WP. The M34 hand-rifle grenade has a safety pin which must be removed, and a safety lever which is released to cause the grenade to function. Newer models also contain a safety clip to keep the safety lever in place should the safety pin be unintentionally removed from the grenade. The M34 hand-rifle grenade uses the M206A2 fuze.

g. Grenade, Hand, Smoke, M18 (G940/G945/G950/G955). These grenades are used for ground-to-air or ground-to-ground signaling and are a burning type munition. The grenades may be filled with any one of four smoke colors: red, green, yellow or violet. Each grenade will emit smoke for 50-90 seconds. The grenade body is of thin sheet metal and is filled with 11-1/2 ounces of red, green, yellow or violet smoke composition. The filler is topped with a starter mixture. Grenades are assembled with the M201A1 pyrotechnic delay-igniting fuze. Older versions may have fuze model E7R6 assembled to them. This model is experimental version of the M201A1 fuze.

h. Grenade, Hand, Smoke, Colored, M48 (G932). The M48 grenade is a special-purpose, burning-type munition used as the training aid for the M47 grenade. This grenade is a nonlethal-type munition that contains red smoke mixture. The grenade consists of rubber body assembly, an M227E1 fuze, and a filling of RS red smoke mixture. The grenade weighs 390 grams (approximately 1 lb), and is 3-1/2 inches in diameter. The gray grenade body is made of two rubber hemispheres vulcanized together. The top half of the grenade contains the fuze, and the bottom half contains the filling hole and the exhaust port. The grenade is filled with approximately 165 grams of RS mixture.

i. Grenade, Hand, Smoke, TA, M83 (G982). This is a burning type grenade used to generate smoke for screening activities of small units. The grenade body is a cylinder of thin sheet metal. It is filled with TA smoke mixture. The grenade is fuzed with the M201A1 pyrotechnic delay-igniting fuze.



j. Grenade, Hand, Incendiary, TH3, AN-M14 (G900). The TH3 incendiary hand grenade is used primarily to provide a source for intense heat to destroy equipment. It generates heat to 4000 degrees Fahrenheit. The grenade filler will burn from 30 to 45 seconds. The grenade body is of thin sheet metal and is cylindrical in shape. It is filled with an incendiary mixture, Thermite TH3 and First-Fire Mixture VII. Grenade is assembled with the M201A1 pyrotechnic delay-igniting fuze. Older models may contain fuze E7R6.

k. Fuze, Hand Grenade, M201A1 (G874). This is a pyrotechnic delay-igniting fuze. The body contains a primer, first-fire mixture, pyrotechnic delay column, and ignition mixture. Assembled to the body are a striker, striker spring, safety lever and safety pin with pull ring. The split end of the safety pin has an angular spread.

l. Fuze, Hand Grenade, M206A1 and M206A2 (G872). These are pyrotechnic delay-detonating fuzes. They differ only in body construction. The body contains a primer and a pyrotechnic delay column. Assembled to the body are a striker, striker spring, safety lever, safety pin with pull ring, and a detonator assembly. The split end of the safety pin has an angular spread or a diamond crimp.

m. Fuze, Hand Grenade, M227 (G869). This is a pyrotechnic delay-igniting fuze. The body contains a primer, first-fire mixture, pyrotechnic delay column, and ignition mixture. Grenade fuze is restrained from functioning by the safety cotter pin, sliding safety latch, and handle. When the safety cotter pin is removed and the safety latch is pushed rearward from the lock pin, the handle is unlocked and grenade is armed. Releasing the handle causes the arming pin spring to eject the arming pin. This releases the firing pin, allowing the firing pin to activate the primer. The primer ignites the first-fire mixture, which flashes and ignites the delay mixture. This in turn, ignites the ignition mixture. The ignition mixture burns through an aluminum foil shield on the bottom of the fuze and ignites the pyrotechnic mixture in the grenade body.

## **P-2. Unique safety precautions.**

a. WP smoke is poisonous upon prolonged or repeated inhalation, particularly in confined space. Normal concentrations in open air are not likely to be harmful. **Have container of water close at hand for submerging items in case of WP leakage.**

b. **PTA (Terephthalic Acid) may cause eye irritation and mild skin irritation. When finely divided and suspended in air, material should be considered a combustible dust.**

c. As HC reacts with water which can start it burning, do not submerge nor apply water to HC items.

d. In high concentrations or on prolonged exposures, HC Smoke irritates the nose and throat and may be quite dangerous when inhaled. Respiratory protection shall be worn by personnel exposed to any concentration of HC smoke.

e. The pin of the M201A1 fuze used on AN-M8 HC; AN-M14 Incendiary; **M83 TA Smoke**, and M18 smoke grenades can be inadvertently pulled during processing; i.e., handling, temporary storage in boxes, at the production plant. This can occur when grenades which are not in the fiber container are placed in boxes and the lever on one grenade catches in the ring of the pin of an adjacent grenade and either pulls or partially pulls the pin. The potential for the pin to be inadvertently pulled is significant up to the point when the grenade is placed in its fiber container. When the grenade is in its fiber container, there is almost no possibility of the pin being inadvertently pulled.

f. To preclude fuze pins from being inadvertently pulled, users are cautioned to comply with the following procedures:

- (1) Retain the grenades in fiber container until they are to be used/inspected.
- (2) Always store and transport the grenades in the fiber container.

(3) Prior to removing the grenade from the fiber container, observe the fuze safety pin. If it is missing, do not remove the grenade from the fiber container. If both legs of the pin are straight or if one leg is straight and the other is bent to an angle less than 45 degrees, bend each leg 90 degrees in opposite directions.

g. If the grenade is upside down in the fiber container (fuze not visible), or if any of the above discrepancies are noted, it should remain inside the container and action taken to dispose of it safely.

h. Grenades should never be lifted or handled by the safety pin pull ring.

**P-3. Testing and equipment requirements.** Not applicable.

**P-4. Inspection category and sampling plan.**

- a. Inspection Category **Y**; Periodic inspection interval -- **three** years.
- b. Sampling plan for inspection is according to chapter 2.
- c. Inspection criteria for fuzes is contained in Appendix T (SASIP 742-1330-94-370).
- d. Item will be inspected and classified according to chapter 2 and table P-1.

Table P-1. Item Defects and Method of Inspection.

Classification	Model	Inspection Method	Inspection Description
1. Critical.			
a. Unauthorized fuze installed.....	All.....	Visual.....	
b. Safety pin missing, or insecurely assembled to the extent that it endangers the user.....	All.....	Visual.....	
c. Grenades mixed within lot which can result in hazardous or unsafe conditions for persons using or maintaining items.	All.....	Visual.....	
d. Marking misleading as to color of smoke.....	M18.....	Visual.....	
e. Evidence of leakage.....	M15, M34.	Visual.....	
f. Grenade packed upside down.....	M15, M34.	Visual.....	
g. Emission holes missing.....	AN-M8, AN-M14, M48	Visual/Manual	Para P-5b
2. Major.			
a. Split seams or swollen body.....	All.....	Visual.....	
b. Tape missing, loose, or does not completely cover emission hole.....	All.....	Visual.....	
c. Fuze loose; not in full 360 degree contact with gasket.....	All.....	Visual.....	
d. Grenade contents leaking.....	AN-M8, M18	Visual.....	
e. Marking incorrect.....	All.....	Visual.....	
f. Rust or corrosion to the extent that grenade cannot be used as intended.	All.....	Visual.....	
g. Grenade cannot be removed from container.....	All.....	Visual.....	
h. Safety latch missing.....	M48.....	Visual.....	
i. Grenade packed upside down.....	AN-M8, M14 M18, M48,	Visual.....	
3. Minor.			
a. Marking incomplete or illegible but type of grenade and lot number are identifiable.....	All.....	Visual.....	
b. Minor rust/corrosion.....	All.....	Visual.....	
c. Layers of flaked rust which, when removed, leave pitting that will not affect functioning.....	All.....	Visual.....	
d. Inadequate paint coverage.....	All.....	Visual.....	
e. Grenade slurry mixture loose .....	M18.....	Visual/Manual	Para P-5a

**P-5. Inspection description and notes.**

a. Shake manually. If rattling sound is heard (M18 grenades with slurry starter mix only), smoke grenade is to be considered serviceable, with restrictions (B01), (C06) and defect classified as minor. Engineering changes for M18 smoke grenades provided for the use of starter mix slug in lieu of starter mix in slurry form. As a result, when grenade with slug starter mix is checked for looseness (manually shaken) there is a slight rattle. This is not a defect, but is inherent in the M18 design. Starter mix slug was introduced into Pine Bluff Arsenal lots as follows:

- (1) 1330-G940 (Green) -- PB-89B013.... and after.
- (2) 1330-G945 (Yellow) -- PB-89A033.... and after.
- (3) 1330-G950 (Red) -- PB-88H055.... and after
- (4) 1330-G955 (Violet) -- PB-88M072.... and after.

b. Feel where tape is covering emission hole to ensure there has actually been a hole made in the metal container underneath the tape.

**P-6. References:**

- a. TM 9-1300-200
- b. TM 9-1330-200-12
- c. TM 9-1330-200-34
- d. TM 43-0001-29
- e. FM 23-30

1. Fuze, Hand Grenade, M227 (G869). This is a pyrotechnic delay igniting fuze. The body contains a primer, first fire mixture, pyrotechnic delay column, and ignition mixture. Grenade fuze is restrained from functioning by the safety cotter pin, sliding safety latch, and handle. When the safety cotter pin is removed and the safety latch is pushed rearward from the lock pin, the handle is unlocked and grenade is armed. Releasing the handle causes the arming pin spring to eject the arming pin. This releases the firing pin, allowing the firing pin to activate the primer. The primer ignites the first fire mixture, which flashes and ignites the delay mixture. This in turn, ignites the ignition mixture. The ignition mixture burns through an aluminum foil shield on the bottom of the fuze and ignites the pyrotechnic mixture in the grenade body.

**Q-2. Unique safety precautions.**

- a. Grenades should never be lifted or handled by the safety pin pull ring.
- b. Before any grenade is removed from its fiber container, it must be thoroughly inspected to see that the safety pin is in place, undamaged, and prongs of the safety pin are spread approximately 45 degrees or diamond crimped. This inspection must also ensure that the fuze lugs are not cracked or broken and the safety lever ears are properly assembled under the lugs.
- c. If the grenade is upside down in the fiber container (fuze not visible), or if any of the above discrepancies are noted, it should remain inside the container and action taken to dispose of it safely.
- d. Any riot control agent may present an inhalation and irritant hazard. Prolonged exposure of the eyes and respiratory system should be avoided. Wear protective masks to avoid excessive exposure when loose or airborne riot control agent is present.

**Q-3. Testing and equipment requirements.** Not applicable.

**Q-4. Inspection category and sampling plan.**

- a. Inspection Category Z; Periodic Inspection Interval -- two years.
- b. Sampling plan for inspection is according to chapter 2.
- c. Inspection criteria for fuzes is contained in Appendix S (SASIP 742-1330-94-370).
- d. Item will be inspected and classified according to chapter 2 and table Q-1.

Table Q-1. Item Defects and Method of Inspection.

Classification	Model	Inspection Method	Inspection Description
1. Critical			
a. Safety Pin Missing.....	All.....	Visual.....	
b. Safety pin is insecurely assembled to an extent that it endangers the user.	All.....	Visual.....	
c. Incorrect model fuze model assembled to grenade.	All.....	Visual.....	
d. Grenades mixed within lot which can result in hazardous or unsafe conditions for persons using or maintaining items.	All.....	Visual.....	
e. Marking misleading as to type of grenade.	All.....	Visual.....	
2. Major:			
a. Tape loose or does not completely cover emission holes.	All.....	Visual.....	
b. Grenades show signs of filler leakage.....	All.....	Visual.....	
c. Grenade packed upside down in fiber or metal container.	All.....	Visual.....	
d. Rust or corrosion to the extent items cannot be used as intended.	All.....	Visual.....	
e. Grenades loose in containers to the extent items cannot be adequately protected during transit.	All.....	Visual.....	
f. Lot number missing or illegible.....	All.....	Visual.....	
g. Grenade cannot be removed from container.....	All.....	Visual.....	
h. Grenade body seams split.....	M7A3...	Visual.....	
i. Grenade body swollen.....	M7A3...	Visual.....	
j. Missing or loose filler plug.....	M25A2..	Visual.....	
k. Safety latch missing.....	M47.....	Visual.....	
3. Minor:			
a. Marking missing or illegible.....	All.....	Visual.....	
b. Minor rust/corrosion.....	All.....	Visual.....	
c. Layers of flaked rust which, when removed, leave pitting that will not affect functioning.	All.....	Visual.....	
d. Inadequate paint coverage.....	All.....	Visual.....	

**Q-5. References:**

- a. TM 9-1300-200
- b. TM 9-1330-200-12
- c. TM 9-1330-200-34
- d. TM 43-0001-29
- e. FM 23-30

Table R-2. Item Defects and Method of Inspection.

Classification	Model	Inspection Method	Inspection Description
1. Critical:			
a. Safety pin missing or broken.....	All.....	Visual.....	
b. Safety pin is insecurely assembled to an extent that it endangers the user.	All.....	Visual.....	
c. Incorrect model fuze assembled to grenade .....	All.....	Visual.....	
d. Grenade packed upside down in fiber or metal container.	All.....	Visual.....	
e. Safety clip (where applicable) missing or improperly positioned.	All.....	Visual.....	
f. Either or both lever hinge ears missing .....	All.....	Visual.....	Fig. S-1
g. Both lever hinge ears not bent away from the body past the vertical center line of the body hinge bosses.	All.....	Visual.....	Fig. S-1
h. Ends of both lever hinge ears not bent upwards .....	All.....	Visual.....	Fig. S-1
i. Grenades mixed within the lot which can result in hazardous or unsafe conditions for persons using or maintaining items.	All.....	Visual.....	
j. Marking misleading as to grenade type.....	All.....	Visual.....	
2. Major:			
a. Cracks in neck area of grenade .....	All.....	Visual.....	Para R-5a
b. Lot number missing or illegible.....	All.....	Visual.....	
c. Pull ring is missing but safety pin is securely assembled.	All.....	Visual.....	
d. Pull ring is damaged to the extent that the safety pin cannot be easily extracted.	All.....	Visual.....	
e. Rust or corrosion to the extent that the grenade cannot be used as intended.	All.....	Visual.....	
f. Any movement of fuze at torque values of less than 26 inch-pounds.	All.....	Visual/Manual.	Para R-5b
g. Grenade loose in containers to the extent items cannot be adequately protected in transit.	All.....	Visual.....	
h. Either lever hinge ear not bent away from the body past the vertical center line of the body hinge boss.	All.....	Visual.....	Fig. S-1
i. End of either lever hinge ear not bent upwards .....	All.....	Visual.....	Fig. S-1
j. Improperly assembled, seated, or loose fuze.....	All.....	Visual.....	
3. Minor:			
a. Paint defects (i.e., scale, peeling, blistering, etc.)	All.....	Visual.....	
b. Layers of flaked rust which leaves pitting when removed but does not affect functioning.	All.....	Visual/Manual.	
c. Marking of grenade incomplete or illegible but type of grenade and lot number are identifiable.	All.....	Visual.....	
d. Inadequate paint coverage .....	All.....	Visual.....	
e. Missing gasket between fuze and neck of grenade .....	All.....	Visual.....	

#### R-5. Inspection description and notes.

a. Visually inspect the neck area for cracks. Cracks (usually in the seam area) that extend downward from the upper edge of the neck to the body and are completely through the metal preclude proper torque being applied to the fuze. These will be classified as major defects.

b. Perform a test of fuze assembly torque according to the following procedures:

(1) Equipment required is listed in table R-1.

(2) Scribe a line across junction of fuze and grenade body to provide means of detecting movement between components. Apply 26 inch-pound torque in tightening direction (clockwise).

(3) Any movement of fuze at torque values of less than 26 inch-pounds will be classified as a major defect. Otherwise serviceable lots rejected as a result of torque failure will be assigned condition code E and reported by memorandum to AMSIO-SMA-N with information copy to AMSIO-QAS. Report will include specific torque values obtained.

(4) Actual performance of test requires caution by operator when applying torque to fuze body. Also avoid physically contacting fuze lever while torquing, as inaccurate values will result.

**R-6. References:**

- a. TM 9-1300-200
- b. TM 9-1330-200-12
- c. TM 9-1330-200-34
- d. TM 43-0001-29
- e. FM 23-30

b. The M571, M592 and M711 fuzes are hand settable with a plunger which provides locking of lower cap in flight and do not require a fuze setting torque test.

#### X-4. Inspection category and sampling plan.

The inspection interval and sampling will be according to chapter 2.

#### X-5. Specific inspection points.

Item will be inspected and classified according to chapter 2 and table X-2. Disposition and proper handling of packing materiel will be according to paragraphs X-6g and h.

Table X-2. Item Defects and Method of Inspection.

Classification	Inspection Model	Inspection Method	Description
1. Critical:			
a. Fuze with missing or broken safety pin or clip .....	M501A1.....	Visual.....	
	M520.....	Visual.....	
b. Fuze not set to safe "S" position .....	M564.....	Visual.....	Para X-6l
c. Ogive and head assembly loose (removable by hand pressure).	M48-series...	Visual/Manual	
	M51-series...	Visual/Manual	
	M557.....	Visual/Manual	
	M572.....	Visual/Manual	
2. Major:			
a. Cracked Ogive .....	Para X-6b....	Visual.....	
b. Threads damaged to the extent precluding assembly .....	All.....	Visual.....	
c. Pull wire not inserted proper depth .....	M520.....	Visual.....	
d. Fuze not set on muzzle action (MA). MA line on lower cap not in line with zero line on body.	M563.....	Visual.....	
	M571.....	Visual.....	
	XM711.....	Visual.....	
e. Ogive loose interferes with setting sleeve .....	M48-series...	Visual.....	
	M51-series...	Visual.....	
	M557.....	Visual.....	
	M572.....	Visual.....	
f. Hairline and number not visible through window .....	M577.....	Visual.....	
	M582.....	Visual.....	
g. Fuze setting not in shipping position (93.5-95.5 seconds).	M577.....	Visual.....	
	M582.....	Visual.....	
h. Fuze not set on SQ .....	M48A3.....	Visual.....	
	M51A5.....	Visual.....	
	M557.....	Visual.....	
i. Booster cup damaged or loose pellets .....	Para X-6c....	Visual.....	
j. Fuze fails torque test .....	Para X-6d....	Manual.....	Para X-6a X-6f
k. Crack in setting window	M577.....	Visual.....	Para X-6j
	M582.....	Visual.....	Para X-6j
l. Fuze not set to "S" position.....	M565.....	Visual.....	Para X-6k
3. Minor:			
a. Firing pin closing disc or foil missing or damaged ....	Para X-6e....	Visual.....	
b. Ogive loose (does not interfere with setting sleeve) or exhibits vertical movement.	M48-series...	Visual/Manual	
	M51-series...	Visual/Manual	
	M557.....	Visual/Manual	
c. Set line in improper position for shipping .....	M513-series.	Visual.....	Para X-6k
	M514-series.	Visual.....	Para X-6k
	M728-series.	Visual.....	Para X-6k
	M732-series.	Visual.....	Para X-6k



**X-6. Inspection description and notes.**

a. Fuzes assembled to complete cartridge rounds will be removed from cartridge prior to testing. Torque is to be applied in the direction of increasing time and with a continuous motion. Desirable method is to complete test in one revolution of setting (lower) cap. In case of an over-run when setting fuze on "safe" or "MA", cap will not be backed off but rotated through a complete cycle.

b. Proximity (non-metallic ogive).

c. All fuzes with booster.

d. All MT and MTSQ and 3 proximity fuzes (M514A3, M728 and M732) require a torque test.

e. All except proximity and solid nose types.

f. Disposition of fuzes bulk packed or assembled to complete rounds that fail torque requirements but not sufficient in number to reject entire lot will be as follows:

(1) Fuzes from bulk pack lots will be authorized for local destruction.

(2) Fuzes removed from cartridges for test will be reassembled to round, tagged, segregated and reported according to provisions of this supply bulletin.

g. Packs selected for item inspection purposes will be kept to a minimum. Additionally, all subject packs which are opened will be marked "Surveillance Samples: not to be shipped until entire lot quantity is exhausted" and used on a recurring basis for future inspections.

h. When opening bulk pack fuzes in M2A1 cans for item inspection purposes, containers will be left open for a minimum amount of time.

(1) When possible, desiccant packed in M2A1 container will be replaced with fresh desiccant prior to repack.

(2) Desiccant to be reused, and styrofoam packing supports removed from M2A1 cans must be stored in an approved desiccant container during item inspection. When containers are not available, styrofoam supports and desiccant will be placed back into M2A1 cans immediately after fuze samples have been removed. Cans will then be closed and not re-opened until fuzes are repackaged.

i. M728 and M514A1E1 (M514A3) fuzes will be classified defective if index line is off the 10 second shipping position by 3-seconds or more.

(3) Swipe test is not required on cartridge, 25mm, M919, APFSDS-T ammunition unless there is evidence corrosion or damage.

(4) Exposure to 25mm APFSDS-T ammunition results in exposure to low level radiation. The amount of radiation the soldiers receive is proportional to the time spent in the close vicinity of APFSDS-T M919 ammunition. Although the radiation exposure received is low, avoid unnecessary contact with packaged APFSDS-T M919 ammunition, within mission constraints.

(5) Loss or unauthorized firing of M919 rounds must be reported through the chain of command as soon as discovered. All transmissions regarding incidents of this nature must be marked, For Official Use Only (FOUO). HQ, IOC must be notified within 24 hours of discovery. Report to Commander IOC, ATTN: AMSIO-DMW (RPO) Rock Island IL. 61299 -6000 DSN: 793-0338/2969, Commercial: (309) 782-2965. After normal duty hours contact Staff Duty Officer (SDO) DSN: 793-6001, Commercial: (309) 782-6001.

**Z-3. Testing and equipment requirements.** Profile and alignment gaging is not authorized at this time. See paragraph Z-7 for M28 link gaging criteria.

**Z-4. Inspection category and sampling plan.**

a. Inspection category: Category W (five years) for items not packed in steel cans with gaskets (includes inert items). Category U (seven years) for items packed in steel cans with gaskets (includes inert items).

b. Sampling plan for 25mm ammunition will be IAW basic portions of SB 742-1, Table 2-3, for Small Arms Ammunition (SAA) under column heading other.

Note: Inner pack and item samples must be selected from a minimum of ten outer packs. Additional outer packs must be inspected at either the inspection or storage location(s) to make a total sample size of twenty.

**Z-5. Specific inspection points.** Refer to MIL-STD-644, MIL-STD-129, DWG 8796522 for marking of wood boxes, DWG 12982865 for other than wood boxes, DWG AC00561 for palletized load marking procedures, and basic portion of SB 742-1 for inspection of packaging and marking. DWGS can be ordered from HQ IOC, ATTN: AMSTA-AR-ESK, Rock Island 61299-6000.

**Z-6. Additional guidance for 25mm Ammunition.**

a. Cartridges, 25mm, M791, M910 and M919.

(1) Missing or cracked plastic nose caps from the discarding sabot are considered a minor defect (see table Z-3). Missing or cracked plastic nose caps do not affect the ballistic performance of these cartridges and do not pose any risk to the weapon. Rounds found with missing plastic nose caps must have the exposed aluminum windscreen visually inspected for dents or damage.

(2) Damaged windscreen will be classified as a major defect.

(3) When defective windscreen samples are noted in sufficient quantities to cause rejection of a serviceable lot, linked belt will not be separated from the serviceable lot, and lot will be reclassified and reported through command channels to the commodity command.

b. Conglomerate lots of 25mm ammunition. Individual lot quantities of 25mm ammunition of less than a standard exterior pack will be accumulated for conglomeration and reported to the commodity command. The commodity command will notify IOC storage activities and overseas commands of items authorized for conglomeration. Automatic disposal of 25mm ammunition is not authorized.

(1) 25mm ammunition will be maintained in stock by individual lot number regardless of lot size.

(2) Quantities will be accumulated and carried on record as usable assets under the appropriate condition code. 25mm ammunition will be reported on DA Form 2415 Ammunition Condition Report (ACR) according to DA PAM 738-750 for disposition instructions.

(3) If authorized, relinking will be IAW basic portions of SB 742-1.

(4) Conglomerate lots will be inspected for serviceability at the same interval as other category W items i.e., five years. Sample size will also be the same.

(5) Packed lots will be identified by DODIC and nomenclature furnished by HQ, IOC.

c. 25mm with lost lot identity.

(1) Firing of 25mm with lost lot identity is prohibited.

(2) All 25mm with lost lot identity (Lot UNKNOWN) will be picked up on accountable records in condition code K pending inspection and classification.

(3) Ammunition determined by inspection to be serviceable and lot number identified will be assigned appropriate condition code. Ammunition determined by inspection to be unserviceable and lot number identified will be assigned appropriate condition code and reported through command channels to the commodity command.

#### **Z-8. Inspection of linked belts.**

a. The M28 link is a two piece assembly intended to hold and link the 25mm ammunition for guiding the ammunition through the weapon system. The assembly consists of hardened steel main and pivot links hooked together and contoured accordingly for its intended purpose.

b. Links for Cartridges, 25mm, M791, M792, M793, M910, and M919 shall be inspected to assure free hinging. Linked 25mm ammunition shall hinge freely and fold over smoothly without binding, kinking, separating or any interference when belt is pulled over itself. Each belt shall be laid out full length with open side of links up. One end shall be drawn over remainder of belt until belt is completely reversed (open side of link down). One end of reversed belt shall then be drawn over remainder of belt until belt is returned to original (open side of link up) position. Belt must hinge freely throughout this process. Failure to hinge freely will be classified as a major defect.

## APPENDIX AA

### GRENADE, LAUNCHER, SCREENING SMOKE

#### AA-1. Item Description.

a. FSC: 1330

b. SASIP 742-1330-94-380

c. Ammunition Type: Grenade, Launcher, Smoke: Screening, RP, (UK) L8A1 & L8A3; Grenade Launcher, Smoke: IR Screening, M76; Grenade, Launcher, Smoke: Simulant Screening, M82.

d. These grenades are used with the four tube launchers (M243, M257 or M259) or the six tube launchers (M239 or M250) mounted on armored/tactical vehicles.

e. Grenade, Launcher, Smoke: Screening, RP, (UK) L8A1 & L8A3 (G815). These grenades are used to provide a self-screening smoke capability for armored/tactical vehicles. The grenade consists of a rubber cylindrical body and a metal base. The rubber body contains 360 grams of red phosphorous/butyl rubber in a 95/5 proportion and a central plastic burster tube containing a burster charge of 15 grams of black powder. The metal base contains the electrical clips, F92 squib type electric fuze, propellant charge of 3.0 grams black powder; and the delay assembly with delay composition (0.26 grams black powder, L8A1; 0.36 grams black powder, L8A3). The metal base contains eight gas propulsion holes covered by a metal foil diaphragm.

f. Grenade, Launcher, Smoke: IR Screening, M76 (G826). This grenade is used to provide an infrared and visual smoke screening capability for armored/tactical vehicles. The grenade consists of a plastic cylindrical body that contains 1200 grams of IR composition (brass flake material), a central burster containing 31 grams of Comp A-5 with a booster of 0.47 grams of Comp CH-6, a safe and arm (S&A) mechanism, and a propellant assembly. The S&A mechanism consists of an out-of-line spring loaded slider/bore rider containing an explosive lead with 0.07 grams of PBXN5 and a spring loaded setback lock. The propellant assembly contains a propellant charge of 1.2 grams of black powder, a pyrotechnic delay detonator, and a propellant retainer which has the electrical contacts and the electric match. The delay detonator contains 0.06 grams of A-1A powder, 0.3 grams of delay composition, 0.09 grams of lead azide, and 0.04 grams of RDX.

g. Grenade, Launcher, Smoke: Simulant Screening, M82. This grenade is used to provide visual screening capability for armored/ tactical vehicles during training exercises. This grenade has the same components as the M76 grenade except the 1200 grams of IR.

#### AA-2. Unique Safety Precautions.

a. If the M76 smoke grenade is armed (slider/borerider projecting from the body, red showing on slider), DO NOT attempt to remove grenade from container. Under no circumstances should attempts be made to return the slider to a safe position by hand. Replace packing, close cover, and notify EOD personnel for disposal.

b. Red phosphorous grenades produce smoke which may present an inhalation and irritant hazard. Prolonged exposure of the eyes and respiratory system should be avoided. Personnel shall wear protective masks to avoid excessive exposure when exposed to an RP smoke concentration.

c. A phosphine gas atmosphere is generated from the smoke mix in L8A1 and L8A3 grenades. As a result, the following safety handling guidance is to be observed.

(1) Store all L8A1 & L8A3 grenades in a ventilated area or magazine.

(2) Storage magazines containing these grenades shall be opened and allowed to ventilate three to five minutes prior to entry by personnel.

(3) These grenades shall only be unpacked out of doors or in a well ventilated area.

(4) Do not open storage containers in the vicinity of open flame or flame producing devices.

#### AA-3. Testing and Equipment Requirements.

Table 3-1. Equipment Identification List.

<u>Description</u>	<u>Identification</u>	<u>Model</u>
Test Equipment for	APE 1974	L8A1/A3
L8 Series Grenades & M76 Kit	APE 1974E002	M76
Universal Resistance Test Instrument	APE 1980	All

#### AA-4. Inspection Category and Sampling Plan.

a. Inspection category Z; Periodic Inspection Interval -- 2 years.

b. Sampling plan and accept/reject criteria for inspection is IAW SB 742-1.

c. Item will be inspected and classified IAW SB 742-1 and Table 5-1 this SASIP.

AA-5. Specific Inspection Points.

Table AA-1 Item Defects		Defect and Method of Inspection	
Classification	Application	Inspection Method	Inspection Description
1. Critical			
a. Grenade armed, slider/ bore-rider extended, showing red.	M76	Visual	
b. Markings misleading as to type of grenade.	All	Visual	
c. Grenades show signs of filler leakage.	L8A1/A3	Visual	I-1
2. Major			
a. Metal base punctured.	L8A1/A3	Visual	
b. Rubber body torn or dry rotted.	L8A1/A3	Visual	
c. Plastic body cracked or damaged.	M76	Visual	
d. Bore seal damaged or missing.	M76	Visual	
e. Electrical contacts missing or corroded to the extent that metal is affected.	L8A1/A3	Visual	I-1
f. Electrical contact clips damaged, bent, corroded, or missing.	M76	Visual	
g. Metal foil covering gas propulsion holes missing or punctured.	L8A1/A3	Visual	
h. Grenade distortion preventing insertion into launcher (discharger).	L8A1/A3	Visual	
i. Resistance of electrical match is less than 1.0 ohms or greater than 1.5 ohms.	M76	Test	I-2
j. Resistance of electric circuit is less than 0.9 ohms or greater the 1.6 ohms (All L8A1 lots and L8A3 lots manufactured prior to PB-89G002-001).	L8A1/A3	Test	I-2
k. Resistance of electric circuit is less than 0.9 ohms or greater than 2.1 ohms (Lot PB-89G002-001 and later).	L8A3	Test	I-2
l. Markings illegible.	All	Visual	

### 3. Minor

a. Slight scratches attributable to normal handling or shipping.	L8A1/A3	Visual
b. Paint defects (e.g., rust scale, peeling, blistering, etc.)	L8A1/A3	Visual
c. Inadequate paint coverage.	L8A1/A3	Visual

### AA-6. Inspection Description.

a. Inspection Description I-1. A black or green buildup of material can occur around firing clips on the L8A1 of L8A3 grenades. This substance is not leaking filler but a type of galvanic corrosion resulting from chemical reaction between copper rivets holding electrical contacts and phosphine gas generated from the main filling (red phosphorous). This external corrosion does not normally affect performance. The firing clips on the grenade connect with a knurled pin contact assembly in the grenade launcher where the knurling will make electrical contact through the corrosion. If the corrosion is to the extent that metal integrity is questionable, classify as major defect. If not, corrosion will be considered incidental.

b. Inspection Description I-2. Install grenade into Continuity Test Fixture. Measure and record resistance of grenade using APE 180. Lots of L8A1 grenades which fail continuity test will be reclassified to Condition Code H (CC-H), demil indicated. Lots of L8A3 which fail continuity test will be reclassified to CC-F.

### AA-7. References:

- a. TM 9-1330-200-12
- b. TM 9-1330-200-34
- c. TM 43-0001-29
- d. TM 9-1330-209-14